STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF SAFE DRINKING WATER

SAFE DRINKING WATER ACT REGULATIONS
(N.J.A.C. 7:10)
ADOPTED: August 21, 2000
Executive Order No. 66(1978) Expiration Date
Chapter 10, Safe Drinking Water Act, expires on July 31, 2005

This copy of the rule is a courtesy copy and is not the official version of this rule. The official, legally effective version of this rule is set forth in the August 21, 2000 issue of the New Jersey Register. Should there be any discrepancies between this text and the official version of the rule, the official version will govern.

The reader is advised that the official version of these regulations as published in the New Jersey Administrative Codes will differ slightly in format and/wording.

N.J.A.C. 7:10 implements the New Jersey's Safe Drinking Water Program.

The adopted changes were necessary in order to improve the overall implementation of the Program. Minor changes (to Subchapters 2, 7, 9, 11, and 12) are to change program names and addresses, remove some ambiguities and correct citations. The most significant changes are as follows: Subchapter 1 includes a revision to the definition of "public water system"; Subchapter 2 includes a new section which requires demonstration of management and technical competence of existing systems whenever a system has undergone a change is status or ownership and/or is found by the Department to be in significant noncompliance with the State primary drinking water regulations; Subchapter 3 includes a revision to the civil administrative penalties to exclude non-primary contaminants monitoring and reporting violations from consideration as major violations; Subchapter 5 is revised so that maximum contaminant level (MCL) determinations are more restrictive, to protect all the customers of public water systems equally from primary contaminants; Subchapter 13, "Standards for technical, managerial, and financial capacity of public community and non-community water systems" is new and required for new public water systems. This requirement satisfies a federal SDWA 1996 amendment; and Subchapter 15 is revised to correct a typographical error in the fee paid by class II water systems without treatment (only few water systems affected).

Any questions regarding these regulations should be directed to the Bureau at (609) 292 - 5550.

SAFE DRINKING WATER ACT REGULATIONS

TABLE OF CONTENTS

SUBCHAPTER 1. GENERAL PROVISIONS

7:10-1.1 Authority

These rules are promulgated pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq., as amended; the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq.; the Realty Improvement Sewerage and Facilities Act, N.J.S.A. 58:11-23 et seq.; the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq.; and N.J.S.A. 58:11-9.1 et seq.

7:10-1.2 Scope, applicability and purpose

These rules implement New Jersey's Safe Drinking Water Program for the purpose of ensuring the provision of safe drinking water to consumers, and enabling the Department to assume primary enforcement responsibility under the Federal Safe Drinking Water Act, P.L. 93-523,42 U.S.C. 300f et seq. The Safe Drinking Water Program also ensures the provision of safe water of adequate pressure and volume by implementing portions of the Water Supply Management Act addressing storage, emergency plans and reducing unaccounted for water (water lost in the distribution system); and by issuing physical connection permits under the N.J.S.A. 58:11-9.1 et. seq.; and by establishing standards for construction and procedures for certifications, under the Realty Improvement, Sewerage and Facilities Act, N.J.S.A. 58:11-23 et seq.

7:10-1.3 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise. Additional definitions specifically applicable to N.J.A.C. 7:10-11 and 12 are set forth at N.J.A.C. 7:10-11.1 and 12.4, respectively.

"Action level" means the concentration of lead or copper in water specified in the National Regulations at 40 CFR 141.80 (c) which determines, in some cases, the treatment requirements set forth at 40 CFR 141.81, 141.82 and 141.83 that a water system is required to complete.

"Acute violation" means an exceedance of an MCL for a contaminant, for example, fecal coliform or nitrates, that is likely to have immediate health effects.

"Additive" means any substance specifically formulated to be added to a water system during the water treatment process to achieve applicable drinking water standards.

"Administrator" means the Administrator of the United States Environmental Protection Agency or his or her authorized representative.

"Administrative authority" means the County Environmental Health Act (CEHA) certified agency or the local board of health having jurisdiction. When water systems serve County, State, and/or Federal facilities, the administrative authority shall mean the Bureau of Safe Drinking Water in the Department.

"Annual operation fee" means the annual fee assessed to each public community water system including each holder of a permit to construct a public community water system issued pursuant to N.J.A.C. 7:10-11 and each recipient of an approval to

construct a public noncommunity water system or a public nontransient noncommunity water system issued pursuant to N.J.A.C. 7:10-12.

"Annual physical connection renewal fee" means the fee assessed for the annual renewal of a physical connection permit pursuant to N.J.A.C. 7:10-10.

"ANSI" means the American National Standards Institute.

"Approved physical connection installation" means a double check valve assembly or a reduced pressure zone backflow preventer assembly which is designed, installed and tested in accordance with N.J.A.C. 7:10-10.

"Backflow prevention device" means either a double check valve assembly or a reduced pressure zone assembly used for the purpose of preventing water flow in the opposite direction of normal flow pattern.

"Bulk distribution system" means a water system that sells water wholesale in bulk quantities to public community water systems for resale to consumers.

"Bulk purchase system" means a water system that buys all of its treated water from another water system(s) and has no water source(s) of its own.

"Bypass" means a secondary pipe or conduit connected to the main pipe or conduit for the purpose of conducting water around a valve, fixture, device, pump station or treatment process.

"Certified laboratory" means a laboratory certified by the Department pursuant to the Regulations Governing Laboratory Certification and Standards of Performance, N.J.A.C. 7:18, to conduct testing for contaminants regulated under the State Act.

"Cistern" means a tank for the collection of rain water draining from a roof or roofs, which water is intended to be used for potable purposes.

"Commissioner" means the Commissioner of the Department of Environmental Protection or his or her designated representative.

"Confined aquifer" means an aquifer which contains ground water under pressure between or below relatively impermeable or significantly less permeable material so that the water surface rises above the top of the aquifer in a well which derives its water from that aquifer.

"Consolidated aquifer" means an aquifer contained within a rock formation.

"Construction material" means any building material typically used in the construction of water system facilities, including but not limited to concrete, mortar, grout, steel, ductile iron,
copper, brass, or zinc.

"Contaminant" means any physical, chemical, biological or radiological substance in water.

"County" means any county or agency or instrumentality of one or more thereof.

"Cross-connection" means any actual or potential connection between a public water system and a source of contamination, such as industrial process water or an irrigation system.

"Department" means the Department of Environmental Protection.

"Dependable yield" means that maintainable yield of water from a surface or ground water source(s) which is available continuously during projected future conditions, including a repetition of the most severe drought of record, without creating undesirable effects, as determined by the Department.

"Detectable disinfectant residual" means a chlorine residual of at least 0.05 mg/l (total chlorine, combined chlorine or chlorine dioxide), or a heterotrophic plate count of 500/ml or less, at the point of collection.

"Distribution system" means all pipes and conveyances from a well or water treatment plant, including storage facilities.

"Double check valve assembly" means a backflow prevention device consisting of two independently acting soft-seated check valves, internally force loaded to a normally closed position between two tightly closing shut-off valves, and with means of testing for tightness. A double check valve assembly includes a double check valve detector assembly for the purposes of this chapter.

"Dug well" means a water table well that is excavated by means of picks, shovels, or similar hand-tools.

"Entry point" means a point in the distribution system where treated water from a treatment plant enters into the distribution system.

"Facility with cross-connection hazards" means a facility that is served by a public community water system and that contains a chemical substance or solution, uses a chemical, physical or biological process, or uses water in a manner that might contaminate the public community water system by way of a cross-connection. Examples of such facilities are listed in Appendix A and incorporated herein by reference.

"Federal Act" means the Safe Drinking Water Act, P.L. 93-523,42 U.S.C. Section 300f et seq., as amended.

"Federal agency" means any department, agency or instrumentality of the United States.

"Filtration avoidance criteria" means criteria specified in the National Primary Drinking Water Regulations, 40 CFR Section 141.71, establishing specific requirements for source water quality conditions and site-specific conditions for a public water system to avoid filtering its surface water source or its ground water source under the direct influence of surface water.

"First offense" means a violation for which there is no prior similar violation.

"Ground water" means the portion of water beneath the land surface that is within the saturated zone, in which all the subsurface voids in the rock or soil are filled with water.

"Initial physical connection permit fee" means the fee assessed for an initial physical connection permit pursuant to N.J.A.C. 7:10-10.

"Interconnection" means a water supply connection with another water system or systems.

"Low risk formation" means:

1. An aquifer which the Department determines to be confined by an overlying layer or bed of distinctly lower permeability, based upon an acceptable pump test report, or on published reports and/or technical memoranda of the N.J. Geological Survey or published reports of the U.S. Geological Survey; or

2. An unconsolidated geologic formation, in which the raw water source is a well screened at a depth of at least 200 feet.

"Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water measured at the point of entry to the distribution system or at the free-flowing outlet of the ultimate user of a public water system or other water system to which State primary drinking water regulations apply. Any contaminant added to the water under circumstances controlled by the user, except a contaminant resulting from corrosion of piping and plumbing caused by water quality, is excluded from this definition.

"MCL violation" means exceedance of an MCL for any contaminant regulated under N.J.A.C. 7:10-5, where such exceedance has been determined by specific procedures as established under the National Regulations.

"Method detection limit" or "MDL" means the minimum concentration of a contaminant, determined pursuant to 40 CFR 136 (Appendix B) or N.J.A.C. 7:18, that can be measured and reported with 99 percent confidence as an analytical result greater than zero.

"MGD" means million gallons per day.

"Municipality" means any city, town, township, borough or village or any agency or instrumentality of one or more thereof.

"National primary drinking water regulations," or "National Regulations" means the current primary drinking water regulations promulgated at 40 CFR Part 141 by the Administrator pursuant to the Federal Act, as such regulations are amended or supplemented from time to time.

"Nonpublic water system" means a water system that is not a public water system. A nonpublic water system includes any water system providing potable water to individual dwellings and any water system regularly serving fewer than 15 service connections or 25 individuals.

"NSF" means National Sanitation Foundation International, Ann Arbor, Michigan.

"Permit application review fee" means the application fee assessed for a permit to construct a public community water system in accordance with N.J.A.C. 7:10-11.

"Person" means any individual, corporation, company, firm, association, joint stock company, partnership, consortium, joint venture, commercial or any other legal entity, municipality, State agency or Federal agency.

"Physical connection" means a connection between a public community water system and any unapproved water supply.

"Physical connection permit" means the permit issued pursuant to N.J.A.C. 7:10-10.

"Population served" means the population determined during the Department's most recent inspection and/or sanitary survey conducted pursuant to N.J.A.C. 7:10-1.4.

"Potable water" means any water used, or intended to be used, for drinking and culinary purposes which is free from impurities in amounts sufficient to cause disease or harmful physiological effects, with the bacteriological and chemical quality conforming to applicable standards.

"Primary drinking water regulation" means a regulation which:

1. Applies at a minimum to public water systems;

2. Specifies contaminants which, in the judgment of the Department, may have adverse effect on the health of persons;

3. Specifies for each such contaminant either a maximum contaminant level if, in the judgment of the Department, it is economically and technologically feasible to ascertain the level of such contaminant in water in public water systems, or if, in the judgment of the Department, it is not economically and technologically feasible to ascertain the level of such contaminant, each treatment technique known to the Department which leads to a reduction in the level of such contaminant sufficient to satisfy the requirements of Section 4 of the State Act; and

4. Contains criteria and procedures to assure a supply of drinking water which dependably complies with such maximum contaminant levels, including quality control, sampling frequencies, and testing procedures to insure compliance with such levels and to insure proper operation and maintenance of the system, and requirements as to the minimum quality of water which may be taken into the system, and siting for new facilities for public water systems.

"Prior similar violation" means, for any given violation, a previous violation that:

1. Is within the same category of violation listed in N.J.A.C. 7:10-3.6(d)1, (d)2 or (d)3;

2. Has been cited by the Department in an administrative order and/or notice of civil administrative penalty assessment issued to the violator; and

3. Was not corrected within the amount of time stated in the administrative order and/or notice of civil administrative penalty assessment.

"Project construction cost" means the total estimated cost of construction contained in the engineer's report submitted as part of the application for a permit to construct a public community water system under N.J.A.C. 7:10-11, excluding engineering, legal fees, financial fees and land acquisition costs.

"Public community water system" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Public noncommunity water system" means a public water system that is not a public community water system and is either a "public nontransient noncommunity water system" or a "public transient noncommunity water system" as defined in this section.

"Public nontransient noncommunity water system" means a public water system that is not a public community water system and that regularly serves at least 25 of the same persons for more than six months in any given calendar year.

"Public transient noncommunity water system" means a public water system that is not a public community or a public nontransient noncommunity water system and that serves at least 25 transient individuals for at least 60 days in any given calendar year.

"Public water system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves at least 25 individuals daily for at least 60 days out of the year. Such term includes any collection, treatment, storage and distribution facilities under control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "public community water system" or a "public noncommunity water system" as defined in this section.

"Raw water" means untreated ground or surface water.

"Reduced pressure zone backflow preventer assembly" means a backflow prevention device which consists of two independently acting soft-seated check valves, internally force loaded to a normally closed position and separated by an intermediate chamber (or zone) in which there is an automatic relief port, which vents to atmosphere, internally loaded to a normally open position between two tightly closing shut-off valves, and which has means for testing the tightness of the check valves and opening of the relief port. A reduced pressure zone backflow preventor assembly includes a reduced pressure zone detector assembly for the purposes of this chapter.

"Safe Drinking Water Program" means the regulatory activities conducted by the Department to carry out the provisions and purposes of the State Act and portions of the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq., addressing the provisions of adequate storage, emergency plans, and reducing the amount of unaccounted for water. The program also carries out regulatory activities of N.J.S.A. 58:11-9.1 et seq. controlling the interconnections between public community water systems and unapproved water systems, and establishes standards for construction and procedures for certifications pursuant to the Realty Improvement, Sewerage and Facilities Act, N.J.S.A. 58:11-23 et seq.

"Sanitary survey" means an on-site review by an authorized representative of the Department of the source(s), facilities, equipment, operation and maintenance of a public or nonpublic water system for the purpose of evaluating the adequacy of the source(s), facilities, equipment, operation and maintenance for producing and distributing safe drinking water with adequate pressure and volume.

"Second offense" means a violation for which there is only one prior similar violation.

"Secondary drinking water regulation" means a regulation applying to one or more water systems, and which specifies the recommended upper limits or optimum ranges of contaminants that are necessary to protect the public welfare. A secondary drinking water regulation may apply to any contaminant in drinking water which may adversely affect the taste, odor, or appearance of such water or which may otherwise adversely affect the public welfare.

"Spring" means a natural surface feature where ground water issues from the rock or soil onto the land or into a body of water.

"State Act" means the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq., as amended.

"State-regulated contaminant" means a contaminant for which the Department has set MCL and monitoring requirements, independent of the National Regulations, as mandated by the State Act.

"Supplier of water" means any person who owns or operates a public water system.

"Surface water" means water at or above the land's surface, which is neither ground water nor contained within the unsaturated zone, including but not limited to, the ocean and its tributaries, all springs, streams, rivers, lakes, ponds, wetlands and artificial water bodies.

"Third or subsequent offense" means a violation for which there are at least two prior similar violations.

"Unapproved water supply" means any source of water which is not part of a public community water system.

"Unconfined aquifer" means an aquifer that is either exposed to atmospheric pressure or bounded by layers of materials which do not serve as an effective barrier to water migration.

"Water system" means a system for providing potable water to any person.

7:10-1.4 Procedures for inspections and sanitary surveys of water systems

(a) An authorized Department representative(s) may conduct an on-site inspection and/or sanitary survey of any water system, and any component part thereof, and may take samples, and inspect, copy or photograph any records required to be kept pursuant to this chapter.

(b) The Department representative(s) conducting an inspection or sanitary survey pursuant to (a) above shall carry identification, and shall present it upon request.

7:10-1.5 Severability

If any provision of this chapter or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications, and to this end, the provisions of this chapter are declared to be severable.

SUBCHAPTER 2. GENERAL REQUIREMENTS

7:10-2.1 Department inventory of public water systems

(a) The Department, through the Bureau of Safe Drinking Water, shall at all times maintain a current inventory of all public water systems in the State, and all changes in said inventory shall be reported to the Administrator by January 1 of each year.

(b) Whenever a public water system is established or abandoned, the owner shall so notify the Department in writing.

7:10-2.2 Department recordkeeping and reporting

The Department, through the Bureau of Safe Drinking Water, shall keep such records, in such a manner, and for such times as shall be required under the National

Regulations, 40 CFR 142.14, and shall submit each report to the Administrator and make each report available to the public as required under 40 CFR 142.15.

7:10-2.3 Plan for the provision of potable water in emergencies

The Department shall prepare and maintain, within the Bureau of Safe Drinking Water, a plan for the provision of safe drinking water under emergency circumstances. The Department shall review and update such plan as necessary.

7:10-2.4 Reporting of changes to plants and emergencies

(a) A supplier of water shall notify in writing the Bureau of Safe Drinking Water at least five working days prior to undertaking any planned change in the treatment plant or its operation that may either temporarily or permanently tend to lessen the quality of water furnished, or increase the likelihood of the delivery of water that does not meet the standards set forth in N.J.A.C. 7:10-5.

(b) A supplier of water shall notify the Department by telephone at (609) 292-5550 during business hours, or (609) 292-7172 during non-business hours, within six hours of the occurrence of any emergency that may tend to lessen the quality or pressure of delivered water, or increase the likelihood of delivery of water that does not meet the standards set forth in N.J.A.C. 7:10-5.

7:10-2.5 Ban on further connections to over-extended or otherwise inadequate systems

Whenever the Department determines that additional water service connections to any public water system may result in a degradation of service to existing users due to deficiencies in such public water system such as inadequate source, treatment, distribution or storage capacities, or inadequate pressure or volume, the Department may prohibit, by order, such additional connections. Upon receipt of such an order prohibiting additional water service connections, the supplier of water shall have twenty (20) days to request a hearing in writing in accordance with N.J.A.C. 7:10-3.5 on said order. At the hearing, the supplier of water has the burden of showing that the prohibition on additional connections should not be imposed.

7:10-2.6 Program Information

Unless otherwise specified, any questions concerning the requirements of this chapter shall be directed to the Bureau of Safe Drinking Water, Water Supply Administration, New Jersey Department of Environmental Protection, PO Box 426, Trenton, NJ 08625-0426, (609) 292-5550. All forms referenced in these rules can be obtained from the Bureau.

7:10-2.7 Managerial and technical competence of water systems

(a) An existing water system which has undergone a change in status or ownership and/or is found by the Department to be in significant noncompliance with the State primary drinking water regulations shall, upon request, provide to the Department a demonstration of managerial capacity as provided in N.J.A.C. 7:10-13.4 and 13.6 and technical capacity as provided in N.J.A.C. 7:10-13.3 and 13.5 from.

1. Determinations made pursuant to this section with respect to a water system subject to the jurisdiction of the Division of Local Government Services, within the Department of Community Affairs shall be made in consultation with the Director of that Division. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Division of Local Government Services under N.J.S.A. 40A:1-1 et seq.

2. Determinations made pursuant to this section with respect to a public water system, which is a public utility subject to the jurisdiction of the Board of Public Utilities pursuant to N.J.S.A. 48:1-1 et seq., shall be made in consultation with the Board of Public Utilities. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Board of Public Utilities under N.J.S.A. 48:1-1 et seq.

SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALTIES AND REQUESTS FOR ADJUDICATORY HEARINGS

7:10-3.1 Scope

This subchapter governs the Department's assessment of civil administrative penalties and the issuance of orders for the violation of any provision of the State Act or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto. This subchapter shall also govern the procedure for assessment, settlement and payment of civil administrative penalties and for requesting an adjudicatory hearing on appeal from a notice of civil administrative penalty assessment or administrative order.

7:10-3.2 Authority

(a) Whenever the Department finds that a person has violated any provision of the State Act, or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, the Department may, singly or in combination, pursue the remedies specified in (a) 1 through 4 below. Pursuit of any of the remedies specified under this section shall not preclude the Department from seeking any other remedy. The Department may:

1. Issue an order requiring the person found to be in violation to comply in accordance with N.J.A.C. 7:10-3.3;

2. Bring a civil action for injunctive and other relief in accordance with N.J.A.C. 7:10-3.9;

3. Levy a civil administrative penalty in accordance with N.J.A.C. 7:10-3.6 and/or 3.7; and/or

4. Bring an action for a civil penalty in accordance with N.J.A.C. 7:10-3.8.

7:10-3.3 Procedures for issuing an administrative order pursuant to the State Act

(a) Whenever the Department finds that a person has violated any provision of the State Act, or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, the Department may issue an order specifying the provision or provisions of the State Act, regulation, rule, permit, or order of which the person is in violation citing the action which constituted the violation, ordering

abatement of the violation, and giving notice to the person of his or her right to a hearing on the matters contained in the order. The ordered party shall have 20 days from receipt of the order within which to deliver to the Department a written request for a hearing in accordance with N.J.A.C. 7:10-3.5. After the hearing and upon finding that a violation has occurred, the Department may issue a final order. If no hearing is requested, then the order shall become final after the expiration of the 20-day period. A request for hearing shall not automatically stay the effect of the order.

7:10-3.4 Procedures for assessment, settlement and payment of civil administrative penalties for violations

(a) To assess a civil administrative penalty under the State Act, the Department shall notify the violator by certified mail (return receipt requested) or by personal service. This notice of civil administrative penalty assessment shall:

1. Identify the section of the State Act, rule, administrative order or permit violated;
2. Concisely state the alleged facts which constitute the violation;
3. Specify the amount of the civil administrative penalty to be imposed; and
4. Advise the violator of the right to request an adjudicatory hearing pursuant to N.J.A.C. 7:10-3.5.

(b) Payment of the civil administrative penalty is due upon receipt by the violator of the Department's final order in a contested case, or when a notice of civil administrative penalty assessment becomes a final order, as follows:

1. If no hearing is requested pursuant to N.J.A.C. 7:10-3.5, a notice of civil administrative penalty assessment becomes a final order on the 21st day following receipt of the notice of civil administrative penalty assessment by the violator;
2. If the Department denies the hearing request pursuant to N.J.A.C. 7:10-3.5(b), a notice of civil administrative penalty assessment becomes a final order on the 21st day following receipt of the notice of civil administrative penalty assessment by the violator;
3. If the Department denies the hearing request pursuant to N.J.A.C. 7:10-3.5(c), a notice of civil administrative penalty assessment becomes a final order upon receipt of notice of such denial; or
4. If the Department grants the hearing request, a notice of civil administrative penalty assessment becomes a final order upon receipt by the violator of a final order in a contested case.

(c) The Department may treat an offense as a first offense solely for the purpose of determining the civil administrative penalty under N.J.A.C. 7:10-3.6 or 3.7 if the violator has not committed the same offense in the three years immediately preceding the date of the pending offense

(d) The Department may settle any civil administrative penalty assessed pursuant to N.J.A.C. 7:10-3.6 or 3.7 according to the following factors:

1. Mitigating or extenuating circumstances not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;
2. The timely implementation by the violator of measures leading to compliance not previously considered in the assessment of penalties pursuant to N.J.A.C. 7:10-3.6;

3. The nature, timing and effectiveness of measures taken to mitigate the effects of the violation or prevent future similar violations not previously considered in the notice of civil
administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;

4. The compliance history of the violator not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;

5. The deterrent effect of the penalty not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6; and/or

6. Any other terms or conditions acceptable to the Department.

7:10-3.5 Procedures to request an adjudicatory hearing to contest an administrative order and/or a notice of civil administrative penalty assessment; procedures for conducting adjudicatory hearings

(a) To request an adjudicatory hearing to contest an administrative order and/or a notice of civil administrative penalty assessment issued pursuant to the State Act, the person to whom the administrative order and/or notice of civil administrative penalty assessment was issued shall submit the following information in writing to the Department at the Office of Legal Affairs, ATTENTION: Adjudicatory Hearing Requests, Department of Environmental Protection, PO Box 402, Trenton, New Jersey 08625-0402:

1. The name, address, and telephone number of the person to whom the administrative order and/or notice of civil administrative penalty assessment was issued and his or her authorized representative;

2. A copy of the administrative order and/or notice of civil administrative penalty assessment being contested;

3. The person's defenses to each of the findings of fact stated in short and plain terms;

4. An admission or denial of each of the findings of fact. If the person is without knowledge or information sufficient to form a belief as to the truth of a finding, the person shall so state and this shall have the effect of a denial. A denial shall fairly meet the substance of the findings denied. When the person intends in good faith to deny only a part or a qualification of a finding, the person shall specify so much of it as is true and material and deny only the remainder. The person may not generally deny all of the findings but shall make all denials as specific denials of designated findings. For each finding the person denies, the person shall allege the fact or facts as the person believes it or them to be;

5. Information supporting the request and specific reference to or copies of other written documents relied upon to support the request;

6. An estimate of the time required for the hearing (in days and/or hours); and

7. A request, if necessary, for a barrier-free hearing location for physically disabled persons.

(b) If the Department does not receive the written request for a hearing within 20 days after receipt by the person of the administrative order and/or notice of civil administrative penalty assessment being contested, the Department shall deny the hearing request.

(c) If the person fails to include all the information required by (a) above, the Department may deny the hearing request.

(d) All adjudicatory hearings held pursuant to this section shall be conducted in accordance with the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., and the Uniform Administrative Procedure Rules, N.J.A.C. 1:1.

7:10-3.6 Civil administrative penalties for violations of the State Act - general

(a) The Department may assess a civil administrative penalty pursuant to this section of not more than $5,000 for each first offense, not less than $5,000 and not more than $10,000 for the second offense, and not less than $5,000 and up to $25,000 for the third and each subsequent offense of the State Act or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto.

(b) If the violation is of a continuing nature, each day during which the violation continues subsequent to receipt of an order to cease the violation shall constitute an additional, separate and distinct violation.

(c) To assess a civil administrative penalty pursuant to this section, the Department shall:

1. Identify the matrix in (f) below by determining the level of offense, that is, first, second, third or subsequent offense as defined in N.J.A.C. 7:10-1.3.

2. Identify the civil administrative base penalty within the matrix in (f) below by determining the seriousness of violation pursuant to (d) below and the type of water system pursuant to (e) below; and

3. The civil administrative penalty shall be the amount within the matrix in (f) below, unless adjusted pursuant to (g) below.

(d) The seriousness of the violation shall be determined as major, moderate or minor as set forth in (d)1 through 3 below.

1. Major seriousness shall apply to any violation that has caused or has the potential to cause serious harm to human health or which seriously deviates from the requirements of the State Act, or any regulation, rule, permit, or order adopted or issued pursuant thereto. Violations of major seriousness shall include, but not be limited to, violations which are in complete
contravention of such requirements or if some of the requirements are met, which severely impair or undermine the operation or intent of the requirements. Violations of major seriousness shall include, but not be limited to:

i. Falsification of any statement, representation, or certification in any application, registration, record, or other document submitted or maintained, or falsification or tampering with any monitoring device or method required to be maintained under the State Act or any regulation, rule, permit, or order adopted or issued pursuant thereto;

ii. Failure to provide public notice of violations in accordance with 40 CFR 141.32(a)(1)(iii);

iii. The refusal, inhibition or prohibition of immediate lawful entry and inspection of any premises, building, or place, except private residences, by any authorized Department representative;

iv. Failure to obtain a sample and analyze for any primary contaminant during a sample period as required by the Department pursuant to the State Act, or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto so that no sample analysis at all has been obtained for a specific contaminant for the sample period;

v. Intentional MCL violation for those parameters that a water system is designed and/or operated to treat; and

vi. Constructing or operating, or commencing or proceeding to build, modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit cannot subsequently be obtained without major modification.

2. Moderate seriousness shall apply to any violation which has caused or has the potential to cause substantial harm to human health or which substantially deviates from the requirements of the State Act, or any regulation, rule, permit, or order adopted or issued pursuant thereto. Violations of moderate seriousness shall include, but not be limited to, violations which are in substantial contravention of such requirements or if some of the requirements are met, which substantially impair or undermine the operation or intent of the requirements. Violations of moderate seriousness shall include, but not be limited to:

i. Failure to comply with any condition or provision of a permit issued pursuant to the State Act;

ii. Constructing or operating, or commencing or proceeding to build, modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit is subsequently obtained with only minor modifications; and

iii. Failure to institute corrective measures for MCL violations in accordance with N.J.A.C. 7:10-5.7.

3. Minor seriousness shall apply to any other violation not included in (d)1 or 2 above. Violations of minor seriousness shall include, but not be limited to:

i. Failure to provide public notice for violations in accordance with 40 CFR 141.32(b);

ii. Failure to report in accordance with N.J.A.C. 7:10-5.4

iii. Constructing or operating, or commencing or proceeding to build modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit is subsequently obtained without the need of any modifications.

(e) The type of water system shall be determined as very small, small, medium or large as follows:

1. A very small water system shall serve a population of 500 or fewer;

2. A small water system serves a population greater than 500 and fewer than or equal to 3,300;

3. A medium water system serves a population greater than 3,300 and fewer than or equal to 10,000; and

4. A large water system serves a population greater than 10,000.

(f) The matrices of civil administrative base penalties are as follows:

1. For a first offense, the matrix of civil administrative base penalties is as follows:

	SERIOUSNESS OF THE VIOLATION		
TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	$250	$500	$1,000
Small	$500	$1,000	$2,000
Medium	$1,000	$2,000	$4,000
Large	$2,000	$4,000	$5,000

2. For a second offense, the matrix of civil administrative base penalties is as follows:

	SERIOUSNESS OF THE VIOLATION		
TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	$5,000	$5,500	$6,000
Small	$5,000	$6,000	$7,000
Medium	$5,000	$6,500	$8,000
Large	$5,000	$7,500	$10,000

3. For a third or subsequent offense, the matrix of civil administrative base penalties is as follows:

	SERIOUSNESS OF THE VIOLATION		
TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	$5,000	$7,500	$10,000
Small	$6,000	$9,000	$12,000
Medium	$7,000	$11,000	$15,000
Large	$8,000	$15,000	$22,000

(g) The Department may adjust the amount of any penalty assessed pursuant to (f) above based upon any or all of the factors listed in (g) 1 through 5 below. No such factor constitutes a defense to any violation. In no case shall the assessed penalty be more than $5,000 for each first offense, less than $5,000 or more than $10,000 for the second offense, and less than $5,000 or more than $25,000 for the third and each subsequent offense.

1. The frequency with which any violation of the State Act, rules, permit or order occurred;

2. The timely implementation by the violator of measures leading to compliance;

3. The nature, timing and effectiveness of measures taken to mitigate the effects of the violation or prevent future similar violations, and the extent to which such measures are in addition to those required under an applicable statute or rule;

4. The deterrent effect of the penalty; and/or

5. Any other mitigating, extenuating, or aggravating circumstances.

7:10-3.7 Civil administrative penalty for failure to pay a fee

(a) The Department may assess a civil administrative penalty pursuant to this section against any person who fails to pay a fee when due pursuant to the State Act, or any regulation, rule or permit adopted or issued pursuant thereto.

(b) The amount of the civil administrative penalty for a violation pursuant to this section shall be in an amount equal to the unpaid fee or $250.00, whichever is greater, up to a maximum of $5,000 for the first offense; two times the unpaid fee or $500.00, whichever is greater, up to a maximum of $10,000 for the second offense; and three times the unpaid fee or $750.00, whichever is greater, up to a maximum of $25,000 for the third and each subsequent offense.

7:10-3.8 Civil penalties for violations of the State Act.

(a) Any person who violates the provisions of the State Act, any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, or an administrative order or a court order issued pursuant to the State Act, or who fails to pay a civil administrative penalty in full pursuant to N.J.A.C. 7:10-3.4(b), shall be subject, upon order of a court, to a civil penalty of not more than $10,000 for each violation, and each day during which a violation continues shall constitute an additional, separate, and distinct violation.

(b) Any penalty established pursuant to this section may be imposed and collected with costs in a summary proceeding pursuant to the Penalty Enforcement Law, N.J.S.A. 2A:58-1 et seq. The Superior Court shall have jurisdiction to enforce the provisions of the Penalty Enforcement Law in connection with the State Act.

7:10-3.9 Civil actions for violations of the State Act.

The Department may institute an action or proceeding in a court of competent jurisdiction for injunctive and other relief for any violation of the State Act, or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto, and the court may proceed in the action in a summary manner.

SUBCHAPTER 4. DISINFECTION

7:10-4.1 Disinfection

(a) Except in accordance with (b) below, every supplier of water from a public community water system shall disinfect all water in accordance with the method and equipment requirements of N.J.A.C. 7:10-11.16 in order to ensure delivered water is of microbiologically safe quality.

(b) Except for public community water systems that use surface water source(s), the supplier of water from a water system that serves 100 or fewer dwellings or properties may elect not to disinfect its water, provided it increases the number of microbiological samples taken from its distribution system to a minimum of two samples per month at biweekly intervals.

(c) Notwithstanding (a) and (b) above, any supplier of water from any public community water system or public noncommunity water system may be required to

disinfect its water if the Department determines that said water is microbiologically unacceptable.

(d) Any supplier of water from a public community water system that purchases treated water from another public water system on a regular or continuous basis may be required to redisinfect said water if deemed necessary by the Department.

SUBCHAPTER 5: STATE PRIMARY DRINKING WATER REGULATIONS

7:10-5.1 Applicability of National Regulations

Except as provided in this subchapter, the Department adopts and incorporates herein by reference the National Primary Drinking Water Regulations, as amended and supplemented, including all siting requirements, filtration and disinfection requirements, maximum contaminant levels, monitoring and analytical requirements, reporting requirements, public notification requirements and recordkeeping requirements, as the New Jersey primary drinking water regulations, applicable to all public water systems. The maximum contaminant levels and action levels in this subchapter shall, in addition, apply to nonpublic water systems, and shall be subject to monitoring requirements established by the appropriate administrative authority. Copies of the National Regulations may be obtained from either the Drinking Water Section of the Water Programs Branch, U.S. Environmental Protection Agency, 290 Broadway, New York, New York 10007-1861, (212) 637-3880; or the Bureau of Safe Drinking Water, Water Supply Administration, PO Box 426, Department of Environmental Protection, Trenton, New Jersey 08625-0426, (609) 292-5550.

7:10-5.2 Discretionary changes to National Regulations

(a) In accordance with the discretionary authority permitted by the National Regulations, for compliance with the State primary drinking water regulations, the following shall apply:

1. Surface water treatment requirements shall be those established under the National Regulations except as provided in N.J.A.C. 7:10-9.

2. Microbiological monitoring shall be undertaken as required under the National Regulations, except:

i. The Department will not reduce the microbiological sampling frequency to less than one sample per month for a public community water system serving 25 to 1000 persons.

ii. The Department will not reduce the microbiological sampling frequency to less than one sample per quarter for a public noncommunity water system (transient or nontransient) using only ground water source(s) and serving 25 to 1000 persons.

3. Inorganics (IOCs) monitoring requirements and MCLs shall be those established under the National Regulations and at (a)7 below.

4. MCLs for volatile organic compounds (VOCs) shall be those established under the National Regulations and at N.J.A.C. 7:10-5.2(a)7 except as listed in Table 1, below, for State-regulated contaminants.

Table 1

MCLs FOR STATE-REGULATED CONTAMINANTS

State-regulated contaminant	MCL (in ug/l or ppb)
Benzene	1
Carbon tetrachloride	2
Chlorobenzene	50
1,3-Dichlorobenzene	600
1,2-Dichloroethane	2
1,1-Dichloroethylene	2
Methylene chloride	3
Tetrachloroethylene	1
Trichlorobenzene(s)	9
1,1,1-Trichloroethane	30
Trichloroethylene	1
Xylene(s)	1000
1,1-Dichloroethane	50
1,1,2-Trichloroethane	3
1,1,2,2-Tetrachloroethane	1
Naphthalene	300
Methyl tertiary butyl ether (MTBE)	70

i. As of January 1, 1997, monitoring requirements for all VOCs, including State-regulated contaminants, shall be those established under the National Regulations.

5. For public noncommunity water systems, monitoring requirements and MCLs for VOCs shall be those established under the National Regulations, except that the MCLs for State-regulated contaminants shall be those listed in Table 1 at (a)4 above.

6. MCLs for synthetic organic compounds (SOCs) and pesticides shall be those established under the National Regulations except for the State-regulated contaminant chlordane, for which an MCL of 0.5 ug/l shall apply.

7. As required pursuant to 40 CFR 142.16, the monitoring period for each contaminant group, specifically, inorganics (except asbestos, nitrate and nitrite), volatile organic compounds and synthetic organic compounds, shall be as follows:

Monitoring Period	Water System Type
Year one of the three year Federal compliance period (that is, 1996, 1999, 2002)	All public community water systems (PCWS) using a surface water source(s) or all PCWS serving a population greater than 10,000.
Year two of the three year compliance period (that is, 1997, 2000, 2003)	All public community water Federal systems using a ground water source(s) serving a population

	equal to or less than 10,000.
Year three of the three year Federal compliance period (that is, 1998, 2001, 2004)	Public nontransient noncommunity water systems.

8. MCLs and monitoring requirements for disinfectants and disinfection by-products shall be those established under the National Regulations.

9. Action levels and monitoring requirements for lead and copper shall be those established under the National Regulations.

10. Subject to (a)10i., below, MCLs and monitoring requirements for radionuclides shall be those established under the National Regulations.

i. Compliance with the MCL shall be individually determined at each sampling location including points of entry to the water distribution system, when individually directed by the Department, based on a running annual average of all quarterly sampling results from each of the sampling location.

11. The Department may allow monitoring waivers for public water systems pursuant to 40 CFR 141.23(c) and 141.24(f) and (h) of the National Regulations.

12. Subject to (a)12I below, suppliers of water from a bulk purchase system are subject only to the microbiological monitoring and lead and copper monitoring requirements of this section.

i. Effective January 1, 2004, a supplier of water from a bulk purchase system that regularly derives its water from another water system using a surface water source(s) and provides water to more than 100 service connections shall at a minimum collect a quarterly disinfection by-products sample from a point within the water distribution system with maximum residence time to be tested for Total Trihalomethanes (THM4) and Total Trihaloacitic Acids (HAA5) disinfection by-products.

7:10-5.3 Analytical requirements

(a) The monitoring and analytical requirements for determining compliance with the maximum contaminant levels shall be those established under the National Regulations.

(b) Any analysis required under this chapter shall be conducted at a certified laboratory, certified in accordance with N.J.A.C. 7:18, for the specific analytical method used.

(c) Each analysis shall be conducted using a method capable of achieving an MDL below the MCL for the contaminant being analyzed.

(d) A supplier of water from a public community water system, when submitting any sample analysis to the Department, shall provide the following:

1. The test result for all contaminants tested for as part of the analytical method.
2. Any test result that exceeds a specified MDL; and
3. A description of the quality control procedures followed applicable to the analysis submitted.

7:10-5.4 Reporting requirements

(a) Except where a shorter reporting period is required by the National Regulations, each supplier of water shall submit a compliance sampling report to the Department within the first ten (10) calendar days of the month following the month in which any test, measurement or analysis is made. The compliance sampling report, containing the sampling results for microbiological contaminants, inorganic compounds, volatile organic compounds, synthetic organic compounds, radionuclides and lead and copper analyses, shall be prepared in a format prescribed by and on forms available from and submitted to, the Department at the following address:

Bureau of Safe Drinking Water
Water Supply Administration
New Jersey Department of Environmental Protection
PO Box 426
Trenton, New Jersey 08625-0426

(b) Within 180 days of receipt of written notification from the Department, each supplier of water shall ensure that all compliance sampling reports are submitted to the Department electronically in a manner compatible with Department's computer system either by diskette or by direct electronic transmission. Public water systems serving fewer than 3,300 persons shall be exempt from the requirement to submit sampling reports electronically.

(c) Each supplier of water from a public community water system shall report by telephone within 48 hours or on the next business day, whichever is sooner, to the Bureau of Safe Drinking Water at (609) 292-5550, the supplier's failure to comply with any primary drinking water regulation, including any failure to comply with any monitoring requirement pursuant to this subchapter. A supplier of water shall report any acute violation by telephone to the Department as soon as the supplier becomes aware of such acute violation.

(d) A supplier of water is not required to submit a compliance sampling report to the Department if the Department conducts the sampling and if the State laboratory performs the sample analysis and reports the results directly to the Department.

(e) Each supplier of water from a public community water system shall submit a monthly report consisting of the daily records maintained pursuant to N.J.A.C. 7:10-5.6 by the 10th day of the month following the month for which the records contained in the report are compiled.

7:10-5.5 Public notification

(a) Each supplier of water shall provide public notification of any violation of any MCL or monitoring requirement in accordance with the National Regulations pursuant to 40 CFR 141.32.

(b) Any supplier of water from a public noncommunity water system which the administrative authority determines is not in compliance with any primary drinking water regulation, including any monitoring requirement, shall immediately post a notice of such failure in a place conspicuous to consumers in a format prescribed in the National Regulations pursuant to 40 CFR 141.32. The notice shall remain posted until the administrative authority determines that the system is restored to compliance.

7:10-5.6 Recordkeeping

A supplier of water shall keep and maintain all records required under the National Regulations and also maintain daily records of water pumpage, quantities of chemicals used for water treatment and routine test results.

7:10-5.7 Remediation requirements and procedures

(a) Except as provided pursuant to (b) below, the supplier of water that analyzes and reports pursuant to this subchapter any violation of a newly promulgated MCL for any of the contaminants regulated pursuant to this subchapter shall, within one year of receipt of the results of the tests conducted pursuant to the National Regulations and N.J.A.C. 7:10-5.2 that demonstrate such exceedance, take any action necessary to bring the water into compliance with the applicable MCL.

(b) The Department may require by administrative order that the supplier of water take prompt action to bring the water into compliance with the applicable MCL upon a determination that such action is necessary to abate an immediate public health threat.

(c) The Department may extend the deadline by which the supplier of water must achieve compliance with the applicable MCL after a public hearing and its determination that the extension will not pose an imminent threat to public health, if new construction of a treatment plant is required.

(d) If the supplier of water fails to take action to bring the water into compliance with the applicable MCL pursuant to (a) above, the Department may take one or more of the following actions:

1. Seek to enjoin the supplier of water from continuing to supply water to the public;
2. Establish a program to bring the public water system into compliance;
3. Provide the customers of the public water system with an alternate potable water supply; and/or
4. Seek penalties in accordance with N.J.A.C. 7:10-3.

SUBCHAPTER 6. VARIANCES AND EXEMPTIONS

7:10-6.1 Variances

(a) The Department may grant to any public water system one or more variances from maximum contaminant levels upon a finding that:

1. Because of characteristics of the raw water sources, the system cannot meet a maximum contaminant level despite application of the best technology, treatment techniques, or other means, which the Department finds are generally available (taking costs into consideration); and
2. The granting of a variance will not result in an unreasonable risk to the health of persons served by the system.

(b) The Department may grant to any public water system one or more variances from any requirement of a specified treatment technique of an applicable national primary drinking water regulation upon a finding that such treatment technique

is not necessary to protect the health of persons because of the nature of the raw water source of such system, and that the granting of the variance or variances will not result in an unreasonable risk to the health of the persons served by the system. A variance issued pursuant to this subsection shall be conditioned on such monitoring and compliance schedule as the Department may prescribe.

(c) A variance pursuant to this subchapter shall be granted only under conditions and in a manner which are no less stringent than those under which a variance may be granted under the Federal Act.

(d) A supplier of water seeking a variance pursuant to this subchapter shall submit a request in writing to the Department that includes the following information:

1. The nature and duration of the variance requested;

2. Relevant analytical results of water quality sampling of the system, including results of relevant tests conducted pursuant to the requirements of this chapter;

3. A full explanation and evidence of the best available treatment technology and techniques;

4. Economic and legal factors relevant to ability to comply;

5. Analytical results of raw water quality relevant to the variance request;

6. A proposed compliance schedule, including the date each step toward compliance will be achieved;

7. A plan for the provision of safe drinking water in the case of an excessive rise in the contaminant level for which the variance is requested;

8. A plan for additional interim control measures during the effective period of variance; and

9. A statement that the supplier of water will conduct monitoring and meet other requirements prescribed by the Department as a condition of the variance.

(e) The Department shall act on any variance request within 90 days of receipt of a request with complete information required pursuant to (d) above. In determining whether to grant a variance the Department will consider the following factors:

1. For a variance pursuant to (a) above from maximum contaminant levels due to the raw water source:

i. The availability and effectiveness of treatment methods for the contaminant for which the variance is requested; and

ii. Cost and other economic considerations such as implementing treatment, improving the quality of the raw water source, or using an alternate source.

2. For a variance pursuant to (b) above from treatment techniques deemed to be unnecessary to protect health:

i. Quality of the raw water source including water quality data and pertinent sources of pollution; and

ii. Source protection measures employed by the public water system.

7:10-6.2 Exemptions

(a) The Department may grant to any public water system one or more exemptions from maximum contaminant levels or treatment technique requirements, or both, upon a finding that:

1. Due to compelling factors (which may include economic factors), the public water system is unable to comply with such maximum contaminant level or treatment technique;

2. The public water system was in operation on the effective date of such maximum contaminant level or treatment technique; and

3. The granting of the exemption will not result in an unreasonable risk to health.

(b) An exemption pursuant to this subchapter shall be granted only under conditions and in a manner which are no less stringent than those under which an exemption may be granted under the Federal Act.

(c) A supplier of water seeking an exemption pursuant to this subchapter shall submit a request in writing to the Department that includes the following information:

1. The nature and duration of exemption requested;

2. Relevant analytical results of water quality sampling of the system, including results of tests conducted pursuant to the requirements of this chapter;

3. Explanation of the compelling factors, such as time or economic factors, which prevent the supplier of water from achieving compliance;

4. A proposed compliance schedule, including the date when each step toward compliance will be achieved; and

5. Any other information believed to be pertinent by the requester.

(d) The Department shall act on any exemption request within 90 days of receipt of a request with complete information required pursuant to (c) above. In determining whether to grant an exemption, the Department will consider the following factors:

1. The need for construction, installation or modification of treatment equipment or systems;

2. The time needed to put into operation a new treatment facility to replace an existing system which is not in compliance with the applicable MCL or treatment technique; and

3. The economic feasibility of compliance with the applicable MCL or treatment technique.

7:10-6.3 Disposition of variance or exemption request

(a) If the Department intends to deny a request for an exemption or variance submitted pursuant to N.J.A.C. 7:10-6.1 or 6.2, the Department shall so notify the applicant in writing and state the reason or reasons for the proposed denial. Such notice shall offer the requester the opportunity to present, within 30 days of receipt of the notice, additional information or argument to the Department. The Department shall make its final determination on the request within 30 days of receipt of such additional information or argument. If no additional information is presented by the requester within the required time, the Department will thereafter deny the request.

(b) If the Department grants a variance or exemption, after satisfaction of the applicable public notice and hearing requirements pursuant to (c) and (d) below, the Department shall notify the applicant by written order. Such order shall identify the variance or exemption, the facility covered, and the termination date. The order shall also contain the terms and conditions deemed appropriate, including interim control

measures, requirements for monitoring, sampling, recordkeeping and reporting and any proposed compliance schedule.

1. The order granting a variance or an exemption from a maximum contaminant level pursuant to this subchapter shall provide that the variance or exemption will be terminated when the system comes into compliance with the applicable maximum contaminant level. The order shall also provide that the variance or exemption may be terminated by the Department upon a finding that the supplier of water has failed to comply with any requirements of a final schedule made applicable to the system pursuant to this section.

2. The order granting a variance from a specified treatment technique pursuant to this subchapter shall provide that the variance may be terminated by the Department at any time upon a finding that the nature of the raw water source is such that the specified treatment technique for which the variance was granted is necessary to protect the health of persons, or upon a finding that the supplier of water has failed to comply with monitoring and other requirements prescribed by the Department as conditions to the granting of the variance.

(c) Prior to issuing an order granting a variance or setting a compliance schedule for a variance or exemption, the Department shall provide public notice of its intent to grant the variance or set the compliance schedule, and shall provide an opportunity for any interested person to request a public hearing on the proposed variance or compliance schedule. Such notice may cover the granting of more than one variance or compliance schedule, if each is identified with specificity.

1. The public notice of opportunity for a public hearing on the proposed variance or compliance schedule for a variance or exemption shall:

i. Be published in the New Jersey Register;

ii. Be published in a newspaper of general circulation in the area served by the public water system.

iii. Include a summary of the proposed variance or exemption compliance schedule; and

iv. Include a statement that interested parties may request, in writing, a public hearing within 30 days after publication of the public notice. The notice shall state the address to which such request should be sent, and a statement that such request for a public hearing must include the name, address, and telephone number of the person or organization making the request, a short statement of the requester's interest in the matter and the information he or she intends to produce at the public hearing, and the requester's signature.

(d) The Department shall grant a request for a public hearing on a variance or compliance schedule for a variance or exemption when it determines, after reviewing the information presented in the request submitted pursuant to (c) above, that there is a reasonable likelihood of useful information being produced at a hearing.

1. If the Department grants a request for a public hearing on a proposed variance or compliance schedule, the Department shall give the public, the requester and the affected public water system notice of the hearing not less than 15 days prior to the scheduled date of the hearing. The Department shall publish notice of the public

hearing in the same manner as it published the notice of the proposed variance or compliance schedule pursuant to (c) above.

2. A representative of the Department shall conduct the public hearing on the proposed variance or compliance schedule in an informal, orderly and expeditious manner and shall submit a report of the public hearing to the Commissioner or his or her designee for final determination.

(e) Within 30 days after a public hearing held pursuant to (d) above on a proposed variance or schedule of compliance for a variance or exemption, the Commissioner or his or her designee shall confirm, rescind or revise the proposed schedule as necessary and prescribe the final schedule of compliance which shall include:

1. Dates for attainment of each step toward compliance;

2. Where applicable, dates by which arrangement for an alternative raw water source or improvement to an existing source will be completed;

3. Dates of connection to an alternative raw water source;

4. Date by which final compliance is to be achieved; and

5. Description of control measures, including interim control measures, for each contaminant for which the variance or exemption is granted.

(f) If no public hearing is held pursuant to (d) above, a variance or exemption schedule of compliance for a variance or exemption proposed pursuant to (c) above shall become effective 30 days after the notice of opportunity for hearing was published pursuant to (c) above.

(g) An exemption shall become effective upon receipt by the supplier of water of the order granting the exemption pursuant to (b) above.

(h) The Department shall promptly notify the Administrator of all variances and exemptions granted. Such notification shall describe the reason(s) for the variance or exemption, state the bases for the findings the Department made in granting the variance or exemption, and document the need for the variance or exemption.

(i) If a supplier of water fails to meet a final schedule of compliance date, or fails to comply with any other condition of the variance or exemption issued pursuant to this section, the Department may terminate the variance or exemption and may seek applicable penalties pursuant to the State Act and N.J.A.C. 7:10-3.

7:10-6.4 Renewal of variances and exemptions

(a) The Department shall specify the duration of a variance or exemption in the order granting the variance or exemption issued pursuant to N.J.A.C. 7:10-6.3. The maximum duration of a variance is three years, including any renewal or renewals. Systems with fewer than 500 service connections may request a maximum of two consecutive 2-year renewals.

(b) A supplier of water seeking to renew a variance or exemption shall submit a renewal request in writing at least six months prior to the expiration of the variance or exemption.

(c) The request for and disposition of a request for the renewal of a variance or exemption shall be made in accordance with procedures set forth at N.J.A.C. 7:10-6.1, 6.2 and 6.3.

7:10-6.5 Requests for adjudicatory hearings

(a) A requester for a variance or exemption under N.J.A.C. 7:10-6.1 and 6.2, or any person subject to the limitation on third party appeal rights set forth in P.L. 1993, c.359 (N.J.S.A. 52:4B-3.1 through 3.3), who believes himself or herself to be aggrieved with respect to decisions made by the Department pursuant to this subchapter may contest the decision and request an adjudicatory hearing pursuant to Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. and the New Jersey Uniform Administrative Procedure Rules, N.J.A.C. 1:1, in accordance with the appeal procedures set forth at N.J.A.C. 7:10-3.5.

SUBCHAPTER 7: STATE SECONDARY DRINKING WATER REGULATIONS

7:10-7.1 Authority, purpose and scope

This subchapter contains the Department's secondary drinking water regulations, promulgated pursuant to the State Act. These regulations apply to any contaminant in drinking water which may adversely affect the taste, odor, or appearance of such water, or which may otherwise adversely affect the public welfare. This subchapter specifies the upper limits or optimum ranges of contaminants in drinking water required to be met by any water system when the Department or the administrative authority having jurisdiction over the water system finds a need therefor. The optimum range or the upper limit for any contaminant in drinking water as specified in this subchapter is the recommended level for such a contaminant as delivered to the free-flowing outlet of the ultimate user of a public or nonpublic water system. These standards shall be met whenever a new source of water supply is constructed or added to a water system. For existing water systems, the Department may require treatment(s) to meet these standards, if the exceedance of one or more of these standards causes adverse effects on the consumers of such systems.

7:10-7.2 Recommended upper limits and optimum ranges for physical, chemical and biological characteristics in drinking water

(a) The following are the recommended upper limits or optimum ranges, as applicable, for the listed physical, chemical and biological characteristics in drinking water. If a physical, chemical, or biological characteristic exceeds the recommended upper limit or falls outside a recommended optimum range, the drinking water may be determined to be unacceptable if, in the judgment of the administrative authority, such characteristics either singly or in combination would render the water unduly unpalatable or aesthetically objectionable.

1. Physical characteristics:

	Recommended upper limit or optimum range
Color	10 color units (standard cobalt scale)
pH	6.5 to 8.5 (optimum range)
Odor	3 Threshold odor number
Taste	No objectionable taste

2. Chemical characteristics:

	Recommended upper limit
ABS/L.A.S. (1)	0.5 mg/l
Aluminum	0.2 mg/l
Chloride	250 mg/l
Fluoride (2)	2 mg/l
Hardness (as $CaCO_3$)	250 mg/l
Iron (3)	0.3 mg/l
Manganese (3)	0.05 mg/l
Silver	0.1 mg/l
Sodium (4)	50 mg/l
Sulfate	250 mg/l
Total dissolved solids	500 mg/l
Zinc	5 mg/l

Notes: (1) Alkyl-benzene-sulfonate and linear-alkyl-sulfonate, or similar methylene blue reactive substances contained in synthetic detergents.

(2) A range of 0.8 to 1.2 mg/l fluoride is recommended for those water supplies in which the fluoride concentration is artificially adjusted.

(3) The limits for iron and manganese may be raised to 0.6 mg/l and to 0.1 mg/l, respectively, if a sequestering treatment is provided. However, when either of these higher limits is exceeded in the raw water of a public community water system, the water shall be treated so as to reduce the iron concentration to below 0.3 mg/l and/or the manganese concentration to below 0.05 mg/l.

(4) Significant only for consumers requiring low sodium diet.

3. Biological characteristics: Water intended for potable purposes shall be free from:

i. Visible organisms such as algae, algal diatoms, crustaceans, arachnids, and larvae; and

ii. Those micro-organisms which render the water unpalatable or unaesthetic to the consumer.

7:10-7.3 Monitoring

(a) When a public community water system is equipped with treatment facilities specifically for pH adjustment and/or iron and/or manganese removal, the supplier of water shall conduct analyses with a minimum frequency of once daily for pH, iron or manganese, as applicable, on samples of water at the point(s) of entry to the distribution system. Such analyses need not be performed by a certified laboratory.

(b) The supplier of water from a public community water system other than a bulk purchase system shall analyze a water sample taken from each point of entry to the distribution system for the physical and chemical characteristics listed at N.J.A.C. 7:10-7.2(a) with a minimum frequency of once a year for surface water supplies and once in three years for ground water supplies. Such analyses shall be performed by a certified laboratory.

(c) The supplier of water from a public community water system shall analyze water samples from its distribution system in accordance with the following:

1. Each supplier of water serving a population equal to or greater than 10,000 shall sample for iron and manganese with a minimum frequency of once a year; and

2. Each supplier of water shall collect at a minimum one additional sample for iron and manganese once for every 50,000 population served, to a maximum of five samples per year.

(d) The Department may require the supplier of water to take more frequent samples for specific characteristics if the routine samples reveal high levels. Such samples may, with prior Department approval, be analyzed by the supplier of water rather than a certified laboratory.

(e) Any person who owns and/or operates a nonpublic water system shall sample and analyze the water for the physical and chemical characteristics listed at N.J.A.C. 7:10-7.2(a) at a frequency established by the administrative authority.

7:10-7.4 Public notification

(a) Whenever the average of samples collected in any one monitoring period exceeds the recommended upper limit for iron, manganese or sodium specified at N.J.A.C. 7:10-7.2 in a public community water system, the supplier of water shall provide public notification by one of the following methods:

1. Newspaper advertisement in a daily or weekly paper serving the local area within 30 days of the exceedance; or

2. Individual notification to consumers by direct mail or flyers within 90 days of the exceedance.

3. Annual water quality report mailed to consumers provided such annual report is issued within 180 days of the exceedance.

(b) The public notification shall be repeated each calender year that the exceedance continues.

(c) The public notification shall specify the recommended upper limit for iron, manganese or sodium exceeded, the actual level of iron, manganese or sodium in the water, a description of the potential adverse effects of the exceedance, and a description of the cause or suspected cause of the exceedance.

SUBCHAPTER 8 : DRINKING WATER ADDITIVES

7:10-8.1 Purpose and scope

This subchapter contains the standards for the use or occurrence of direct and indirect additives in public water systems in order to protect against the adverse health effects of such additives. A supplier of water shall meet the requirements of this subchapter only with regard to the public water system facility and related appurtenances under the control of the supplier of water.

7:10-8.2 Drinking water additives

(a) The Department adopts and incorporates by reference the following ANSI/NSF standards, as amended and supplemented. The standards may be obtained

from NSF International, 475 Plymouth Road, P. O. Box 130140, Ann Arbor, Michigan 48113-0140.

1. ANSI/NSF Standard 60, Drinking Water Treatment Chemicals, and
2. ANSI/NSF Standard 61, Drinking Water System Components.

i. For the purpose of this subchapter, ANSI/NSF Standard 61 shall apply only to new construction, or the modification or repair of existing facilities.

(b) Except as provided in (e) and (f) below, a supplier of water shall use only additives and drinking water system components which meet the standards listed in (a) above.

(c) A supplier of water shall use only additives certified by an organization which has been accredited by ANSI to test and certify additives. The supplier of water shall not use additives certified only by the manufacturer.

(d) The supplier of water shall maintain at the treatment plant, for a minimum period of ten years, records of all additives used to treat the water, including additive name, certification, point of addition and quantities.

(e) If a supplier of water desires to use an additive or component which is not certified pursuant to ANSI/NSF Standard 60 or 61 and no similar additive(s) or components has been certified by any organization which has been accredited by ANSI to test and certify additives, the supplier of water may submit a request to the Department for approval to use the uncertified additive or component on a temporary basis. The request for approval must include the manufacturer's detailed product information regarding potential adverse health effects and the manufacturing and quality control data indicating the purity of the additive.

(f) Any construction materials other than drinking water system components that come in contact with a water supply are exempt from the requirements of this subchapter, subject to (g) below.

(g) The Department reserves the right to prohibit use of a construction material that it determines is detrimental to public health and/or safety when in contact with a water supply.

(h) This subchapter shall become operative 180 days after the effective date of this chapter.

SUBCHAPTER 9: SURFACE WATER TREATMENT REQUIREMENTS

7:10-9.1 Purpose and scope

This subchapter establishes minimum treatment requirements for public water systems which use surface water or ground water under the direct influence of surface water and discretionary changes to the National Regulations, 40 CFR 141, Subpart H - Filtration and Disinfection, as adopted and incorporated by reference at N.J.A.C. 7:10-5.1.

7:10-9.2 Discretionary changes to national surface water treatment requirements

(a) In accordance with the discretionary authority permitted by the National Regulations, for compliance with the State primary drinking water regulations including surface water treatment requirements, the following shall apply:

1. Each supplier of water from a system that uses a surface water source or a ground water source under the direct influence of surface water must provide filtration treatment using a filtration method or methods as established under the National Regulations, 40 CFR 141.73. The Department will grant exceptions to this requirement only for ground water sources that are determined to be under the direct influence of surface water pursuant to N.J.A.C. 7:10-9.3 and that meet the filtration avoidance criteria established under the National Regulations at 40 CFR 141.71(a) and (b).

2. Prior to January 1, 2002, for each filtration plant which treats surface water or ground water under the direct influence of surface water, the filtered water turbidity level shall be less than or equal to 0.5 Nephelometric Turbidity Units (NTU) in at least 95 percent of each month's filter or plant effluent samples. This standard shall apply to all types of filtration treatments, including but not limited to, conventional or direct filtration, slow sand filtration, and diatomaceous earth filtration. As provided in the National Regulations, 40 CFR 141.73, the Department may increase the turbidity standard for the filtered water for individual filtration plants to 1.0 NTU in 95 percent of each month's filter or plant effluent samples.

3. Effective January 1, 2002, for each filtration plant which treats surface water or ground water under the direct influence of surface water, the filtered water turbidity level shall be less than or equal to 0.3 Nephelometric Turbidity Units (NTU) in at least 95 percent of each month's filter or plant effluent samples. This standard shall apply to all types of filtration treatments, including but not limited to, conventional or direct filtration, slow sand filtration, and diatomaceous earth filtration.

7:10-9.3 Determination of ground water sources to be evaluated for direct influence of surface water

(a) Except as provided at (b) below, each supplier of water shall monitor each raw water source for pH, turbidity, temperature, conductivity, coliform bacteria and/or particulate matter, in accordance with N.J.A.C. 7:10-9.5, if the source meets any of the following criteria:

1. The source is an infiltration gallery, spring, cistern, radial well collector or dug well;

2. The raw water quality data for the source indicates the existence of one or more of the following in the raw water: fecal coliform bacteria, Giardia cysts, or other pathogenic organisms associated with surface water;

3. The source is a well which has less than 50 feet of casing;

4. The source is a well and the annular space between the oversized borehole and the well casing is not grouted;

5. The source is located less than 200 feet horizontally from any surface water body that holds or carries water continuously for at least 60 calendar days in any year, including, but not limited to, a stream, river, brook, lake, reservoir, impoundment, pond or creek.

6. The source is less than 200 feet horizontally from a source of microbial contamination which may involve a ground water discharge, including but not limited to, a septic system, cesspool, feedlot, stormwater detention basin or point discharge of highway drainage.

(b) The monitoring required pursuant to (a) above shall not apply to the sources described at (a)5 and 6 above if the supplier of water demonstrates that such source draws water from a low risk formation as defined in N.J.A.C. 7:10-1.3.

(c) By June 30, 1997, each public community water system shall submit for each source that meets the criteria in (a) above a completed Checklist for Determination of Ground Water Status to the Bureau of Safe Drinking Water in the Department. Public noncommunity water systems shall submit the checklist upon the request of the Department, where, based upon a history of noncompliance with applicable coliform standards, use of disinfectant treatment, and other physical evidence revealed by inspection, the Department determines that the system's ground water source may be at risk of contamination by surface water.

1. The Checklist shall specify the identification, location, construction, and microbiological quality of each source.

2. Any Checklist properly completed and submitted to and received by the Department prior to the effective date of this chapter will be considered as complying with this subsection.

7:10-9.4 Monitoring requirements and criteria for determination for ground water sources under the direct influence of surface water

(a) Each supplier of water that has a ground water source that meets any of the criteria in N.J.A.C. 7:10-9.3(a) shall monitor that source for a period of one year from the date of receipt of notice of such determination made pursuant to N.J.A.C. 7:10-9.3 using the procedures set forth in (b) below.

(b) During the one-year monitoring period established pursuant to (a) above, the supplier of water shall monitor the ground water source according to the sampling scheme below:

1. The supplier of water shall collect precipitation data and sample the raw water source in four series of six weekly tests, with the series separated by at least 30 calendar days and one of the series performed during the period of peak production for the source, for all of the following physical/chemical parameters:

i. pH;

ii. Temperature;

iii. Turbidity;

iv. Conductivity; and

v. Total coliform bacteria (if a sample result is positive for total coliform, the water shall be tested for fecal coliform or E. coli).

2. The supplier of water shall sample the raw water source for particulate matter using Microscopic Particulates Analysis (MPA) as set forth in the U.S. Environmental Protection Agency's "Guidance Manual for Compliance with the Filtration and Disinfection Requirements For Public Water Systems Using Surface Water Sources" (dated March, 1991). A minimum of four particulate analyses shall be performed during

the one-year monitoring period. The sampling shall be conducted immediately following significant precipitation events and/or during the period of peak production for the source and shall be separated by at least 60 calendar days. The analyses shall determine the presence, if any, of the following:

i. Diatoms;
ii. Rotifers;
iii. Coccidia;
iv. Insect parts and larvae;
v. Cryptosporidium; and
vi. Giardia cysts.

(c) If the sampling results for the physical/chemical parameters listed in (c)1 through 5 below show significant variation during the course of the one-year monitoring period established pursuant to (a) above, the supplier of water shall switch to particulate matter monitoring as described in (b)2 above for the remainder of the one-year monitoring period. If the supplier of water does not switch to particulate matter monitoring, then the raw water source will be considered by the Department to be "under the direct influence of surface water" and subject to the filtration and disinfection requirements of this subchapter. The Department considers the following variations to be "significant" for purposes of this subsection:

1. The turbidity of the raw water source fluctuates more than 0.5 NTU over the course of any one month;

2. The turbidity of the raw water source exceeds 1.0 NTU at any time;

3. The temperature of the raw water source fluctuates in excess of five degrees Fahrenheit over the course of any one month or in excess of 15 degrees Fahrenheit over the course of one year;

4. The pH, conductivity, or temperature of the raw water source varies by more than 20% of the annual average during any one month; or

5. Fecal coliform bacteria occur in the raw water source.

(d) Except as provided at (c) above, only the presence of rotifers, diatoms, coccidia, insect parts and larvae, fecal coliform or E. coli bacteria, Cryptosporidium, and/or Giardia cysts in the raw water source will be considered by the Department as indicative of direct surface water influence.

(e) Each well in a wellfield shall be individually monitored pursuant to this section, even if all the wells discharge into a common header, unless physical circumstances prevent such individual monitoring.

(f) A sampling report, including the raw water monitoring results in tabular form and a written description of the monitoring results, shall be submitted to the Department within 30 calendar days after the completion of monitoring conducted pursuant to this section. The report shall be sent to:

Bureau of Safe Drinking Water
New Jersey Department of Environmental Protection
PO Box 426
Trenton, New Jersey 08625-0426

7:10-9.5 Surface water treatment plant reporting requirements

(a) Each supplier of water that uses a surface water source shall submit the following documentation to the Department:

1. For treatment plants with a capacity of less than 10 MGD, the "Bureau of Safe Drinking Water Surface Water Treatment Plant Survey," which includes a process schematic drawing of the treatment plant, and detailed information on contact basins, filters and disinfectant, shall be submitted to the address noted in N.J.A.C. 7:10-9.4(f) by March 30, 1997. For treatment plants with a capacity of less than 10 MGD that do not meet the filtration and disinfection treatment requirements established under the National Regulations, 40 CFR 141.73, as determined by the Department based on information submitted in the Survey, the supplier of water may have the plant evaluated pursuant to (a)2. below in order to demonstrate compliance with this subchapter.

2. For existing treatment plants with a capacity greater than or equal to 10 MGD, the tracer study evaluation report prepared as recommended in the U.S. Environmental Protection Agency's "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources" (dated March 1991) as amended and supplemented, shall be submitted to the address noted in N.J.A.C. 7:10-9.4(f) by June 30, 1997. The tracer study evaluation must be performed by either a New Jersey licensed professional engineer who is familiar with water filtration and disinfection treatment design or the water treatment system operator licensed pursuant to N.J.A.C. 7:10-13.

3. For new water treatment plants with a capacity greater than or equal to 10 MGD, the tracer study evaluation report shall be submitted within 1 year of commencement of operation of the plant.

7:10-9.6 Additional Requirements

(a) Each supplier of water with an existing surface water filtration plant shall install a continuous analyzer/recorder to monitor the turbidity of the combined filter effluent or plant effluent by June 30, 1997 and shall install a continuous analyzer/recorder to monitor the turbidity of the effluent from each individual filter by December 31, 2000.

(b) The supplier of water shall verify the accuracy of performance of each analyzer/recorder required pursuant to (a) above by taking a grab sample of the effluent at least once in every 24-hour period. In the case of analyzer/recorder failure, the supplier of water shall take a grab sample at least once every four hours during the period in which the analyzer/recorder is out of service.

(c) Each supplier of water shall establish and maintain on-site written routine operating procedures for minimizing initial turbidity peaks that occur after filter backwashing.

(d) Any filter removed from service for longer than one week shall be backwashed prior to being placed back into service in order to remove microbiological buildup.

(e) Each supplier of water that uses conventional filtration treatment or direct filtration shall continuously apply a coagulant while the treatment plant is in operation.

(f) For the purpose of complying with the minimum total removal/inactivation requirements of the National Regulations, 40 CFR 141.70, the following total minimum removal/inactivation requirements for disinfection shall apply:

1. For treatment plants that use conventional filtration treatment, the supplier of water shall provide sufficient disinfection to achieve a minimum of 0.5-log (68%) inactivation of Giardia cysts and a 2-log (99%) inactivation of viruses.

2. For treatment plants that use direct filtration, slow sand filtration and diatomaceous earth filtration, the supplier of water shall provide sufficient disinfection to achieve a minimum of 1-log (90%) inactivation of Giardia cysts and a 3-log (99.9%) inactivation of viruses.

3. For treatment plants that use filtration technologies other than those specified in (f)1. and 2. above, the Department will determine the minimum disinfection requirements on a case-by-case basis.

(g) The Department may modify the minimum removal/inactivation requirements for disinfection set forth in (f) above if it determines that the removal efficiency of a filtration plant exceeds or is less than optimum based on the results of filtration efficiency studies, conducted at the treatment plant by the supplier of water, that indicate log inactivation of Giardia and viruses.

(h) Each supplier of water shall install a continuous analyzer/recorder on each filtration plant to monitor the disinfectant residual entering the distribution system. The supplier of water shall verify the accuracy of the performance of each analyzer/recorder by taking a grab sample of disinfectant residual at least once in every 24-hour period. In the case of analyzer/recorder failure, the supplier of water shall take a grab sample at least once every four hours during the period in which the analyzer/recorder is out of service.

SUBCHAPTER 10: PHYSICAL CONNECTIONS AND CROSS CONNECTION CONTROL BY CONTAINMENT

7:10-10.1 Purpose and scope

(a) This subchapter establishes the permit, design, and testing requirements of a backflow prevention device at facilities with physical connections between public community water systems and facilities which have sources of water which may be contaminated or of questionable or unknown quality, and/or facilities with cross-connection hazards over which the supplier of water has little or no control for the purpose of protecting the public community water system from backflow from such waters. This subchapter also establishes a framework for a public community water system to implement a cross-connection control program that would require the installation of a containment backflow prevention device at facilities with cross-connection hazards as outlined in N.J.A.C. 7:10-10.9.

(b) The requirements of this subchapter apply in conjunction with the requirements of the Plumbing Subcode of the New Jersey State Uniform Construction Code, N.J.A.C. 5:23-3.15, for the prevention of illegal plumbing cross-connections, and with any other state or local requirements for the practice or procedure known as

"cross-connection control by containment" whereby a backflow prevention device may be required to protect a public community water system from contamination as a result of plumbing cross-connections, or any other cross-connections.

7:10-10.2 General provisions and prohibitions

(a) Except as provided in (e) below, each owner of a facility containing an unapproved water supply shall obtain a physical connection permit pursuant to N.J.A.C. 7:10-10.5 for an approved physical connection installation and shall install such installation in accordance with the requirements of this subchapter as follows:

1. At each physical connection between a public community water system and any unapproved water supply; and/or

2. Where dual but physically separate water lines from a public community water system and from an unapproved water supply are located within the same building, including fire service lines.

(b) An approved physical connection installation shall be installed in accordance with this subchapter on each pipe conveying water from the public community water system into a facility supplied with water in the manner described in (a)2 above, including fire service lines.

(c) An authorized representative of the Department, administrative authority or the owner of the public community water system, who shall produce proper identification upon request, may enter a facility where an unapproved water supply is (or suspected to be) located during regular business hours for the purpose of conducting an inspection and/or test of an approved physical connection installation, or investigating a suspected violation of this subchapter, or verifying information submitted to the Department pursuant to this subchapter.

(d) Any holder of a current physical connection permit may, at his option, use a certified tester selected from the most current list of certified testers supplied by the certifying agency to the Department pursuant to N.J.A.C. 7:10-10.8(f) for the purpose of performing quarterly pressure tests and inspections of backflow prevention devices pursuant to N.J.A.C. 7:10-10.6.

(e) The requirements of N.J.A.C. 7:10-10.3 through N.J.A.C. 7:10-10.7 do not apply to physical connection installations in private residences. A physical connection installation shall not be installed in a private residence except as follows:

1. The licensed operator of the public community water system approves the installation and verifies that:

i. No portion of the potable water plumbing system of the private residence is interconnected with an unapproved water supply (e.g., private residence well); and

ii. A reduced pressure zone backflow preventer assembly, a double check valve assembly, or similar backflow prevention device is installed on the public community water system service line. The supplier of water shall determine the type of device that must be installed.

7:10-10.3 Approved physical connection installation requirements

(a) An approved physical connection installation shall be either a double check valve assembly or a reduced pressure zone backflow preventer assembly as defined at N.J.A.C. 7:10-1.3 designed and constructed in accordance with the requirements of this subchapter.

(b) The approved physical connection installation shall be a reduced pressure zone backflow preventer assembly when the unapproved water supply is non-potable water source or a source in which contaminant levels measured pursuant to the State primary drinking water regulations at N.J.A.C. 7:10-5 exceed the maximum contaminant levels specified therein;

(c) The requirements of (b) above shall not apply to any physical connection installation operated under a current physical connection permit issued before the operative date of this chapter until such time as the existing physical connection is replaced or modified.

(d) Each backflow prevention device used in an approved physical connection installation shall be constructed as follows:

1. For devices up to and including two inches in diameter, the double check valve assembly or the reduced pressure zone backflow preventer assembly shall be of durable, non-toxic plastic, or of all stainless steel, all bronze, or all brass construction;

2. For devices larger than two inches in diameter, the double check valve assembly or the reduced pressure zone backflow preventer assembly shall be constructed as described in (d)1 above or shall be constructed of cast iron or steel, lined with brass, bronze, epoxy resin, stainless steel, or other durable nontoxic, non-corrodible material acceptable to the Department;

3. The clappers, discs or poppets, hinges, bushings, and seatings of the check valve assemblies in any device used for an approved physical connection installation shall be constructed of brass, bronze, stainless steel or non-toxic plastic, and shall be so designed and installed as to be readily replaceable;

4. Facing rings of the clappers, poppets or discs, or differential relief valves shall be composed of durable molded natural rubber, synthetic rubber or neoprene, shall be of even thickness, smoothfaced, water-absorption resistant and shall provide a positive seal against the backflow of water through the device;

5. Every double check valve assembly and reduced pressure zone backflow preventer assembly shall have test cocks installed to facilitate the pressure testing required pursuant to N.J.A.C. 7:10-10.6;

6. Every backflow prevention device up to two inches in diameter shall be installed with full port ball type shutoff valves. For backflow prevention devices that are larger than two inches in diameter, shutoff valves of the ball valve type are recommended. Strainers installed upstream of the leading shutoff valve are recommended for all backflow prevention devices regardless of sizes; and

7. The pipe conveying water from the differential relief port of a reduced pressure zone backflow preventer assembly shall allow an air gap between the assembly and the drain pipe, and the pipe shall be of the same diameter as, or larger than, the relief port.

(e) All approved physical connection installations shall meet the following operating conditions:

1. The turbulence in the backflow prevention device shall not be excessive for flow rates up to the rated flow so as not to interfere with proper operation of the device;

2. All moving parts shall be designed to operate up to the rated flow in a positive manner without chatter;

3. The backflow prevention device shall not cause water hammer, nor be adversely affected by water hammer arising from an outside condition; and

4. The backflow prevention device shall not permit leakage in a direction reverse to normal water flow.

(f) In addition to the operating conditions set forth at (e) above, all double check valve assemblies shall, under normal flow conditions, operate so that the independently operating check valves remain closed until there is a demand for water. Each of the check valves in series must maintain a minimum of one psi pressure differential in the direction of flow. If, at any time, pressure downstream of the device increases to within one psi of supply pressure, both check valves must close to prevent backflow.

(g) In addition to the operating conditions set forth at (e) above, all reduced pressure zone backflow preventer assemblies shall, under normal flow conditions, operate so that both check valves are open and the pressure area between the check valves, called the zone, is at least five psi lower than the supply pressure. The relief valve, within the zone, is held shut by supply pressure acting through an internal sensing passage on the relief valve diaphragm. The first check valve in the line of flow must maintain a minimum pressure differential of five psi and the second check valve in the line of flow must maintain a minimum pressure differential of one psi. If the first or second check valve becomes fouled, the pressure in the zone will increase causing the relief valve in the zone to open automatically and discharge to the atmosphere in order to maintain a pressure in the zone which is at least two psi lower than the supply pressure, thus preventing backflow.

7:10-10.4 Installation

(a) The approved physical connection installation shall be installed on the customer's side of the water meter on the pipe(s) conveying the water from the public community water system into a facility, shall be installed as close to the meter as is reasonably practicable, and shall be prior to any other connection, unless such other connection is also protected by means of an approved physical connection installation. For a fire service line, the approved physical connection installation shall be installed prior to the alarm check and siamese connection.

(b) The approved physical connection installation shall be installed so as to allow easy access, with adequate space for maintenance, inspection, and testing. No part of the device shall be submerged or subjected to freezing temperatures unless such part is thermally protected.

(c) The approved physical connection installation shall not be installed in a pit or vault.

1. This subsection shall not apply to any physical connection installation operated under a current physical connection permit issued before the operative date of this chapter until such time as the existing physical connection installation is replaced or modified.

(d) Unless specifically designed for installation in a vertical position, any device used as an approved physical connection installation shall be installed in the horizontal position. Devices specifically designed for vertical installation shall be installed in an up-feed position.

(e) There shall be no bypass around any approved physical connection installation unless such bypass is also protected by an approved physical connection installation.

(f) When a physical connection installation is proposed for a facility whose supply of water from the public community water system cannot be interrupted for testing and/or maintenance, a redundant backflow prevention device shall be provided at the facility.

7:10-10.5 Physical connection permit application and renewal procedures

(a) Initial permit rules are as follows:

1. Prior to the installation of a physical connection, the owner of the facility where the installation is to be made shall submit to the Department and to the owner of the public community water system a completed application form for an initial physical connection permit. The application form may be obtained from the Department at the Bureau of Safe Drinking Water, CN 426, Trenton, New Jersey 08625.

2. The Initial Physical Connection Permit application form includes the following information:

i. The facility name, location and municipality;

ii. The facility owner's name, address and telephone number;

iii. The name of the public community water system;

iv. The name of the administrative authority;

v. The source of the unapproved water supply;

vi. The uses of the public community water system water and the unapproved water supply;

vii. The type of operation conducted at the facility;

viii. The type and size of backflow prevention devices and service connections from the public community water system;

ix. A certification by the owner of the facility that the proposed installation complies with the requirements of this subchapter; and

x. As an attachment, a drawing showing the facility layout with street locations, location of any unapproved water supply, all service connections from the public community water system, location of backflow prevention device(s) and sufficient longitudinal and transverse sections to adequately explain the installation.

3. The Department and the owner of the public community water system shall review the application and notify the owner of the facility in writing if the proposed physical connection installation meets the requirements of this subchapter.

4. Upon receipt of the notification from the Department and the owner of the public community water system pursuant to (a)3 above, the owner of the facility shall ensure that the physical connection installation is installed in accordance with the application approved pursuant to this section.

5. Upon completion of the physical connection installation, the owner of the facility shall contact the owner of the public community water system, the Department, and the administrative authority to arrange for the initial inspection and pressure testing of the physical connection installation in accordance with N.J.A.C. 7:10-10.6. The pressure test results shall be recorded on the Quarterly Physical Connection Test and Maintenance Report form.

6. Upon completion of the inspection and pressure testing of the device pursuant to (a)5 above, the authorized representatives of the public community water system, the administrative authority and the Department shall complete the Certification of Inspection and Testing Results form obtained from the Department.

7. The owner of the facility shall obtain the Certification of Inspection and Testing Results form completed in accordance with (a)6 above and submit the completed certification to the Department.

8. The Department will review the application and results of the inspection and pressure testing conducted and certified pursuant to (a)5 and 6 above, and will notify the owner of the facility, the supplier of water and the administrative authority in writing of its decision to issue a physical connection permit or to deny the application. If an application is denied, the Department will state the reason(s) for the denial.

(b) Permit renewal rules are as follows:

1. Prior to the expiration of a permit, the Department will mail a Physical Connection Permit Renewal application form to each holder of a current physical connection permit issued pursuant to this subchapter.

2. The Physical Connection Permit Renewal application form includes the following information:

i. The physical connection permit number;

ii. The facility name, location and municipality;

iii. The facility owner's name, address and telephone number;

iv. The facility owner’s signature;

v. The number, type and size of device(s) permitted;

vi. The record of the dates of quarterly pressure tests and internal inspections; and

vii. Either certifications from the supplier of water and/or the administrative authority that the backflow prevention device(s) was functioning satisfactorily at the time of the tests, if the administrative authority and/or the supplier of water’s representative was present during the tests or certification from the certified tester through submission of the Quarterly Physical Connection Test and Maintenance Report recommending that the physical connection permit be renewed for one year.

3. Upon completion of the inspection and pressure testing of the existing installation, the permit holder shall obtain the certification of the authorized representative of the administrative authority and/or the owner of the public community water system as to the results of the inspection and quarterly pressure tests recorded on the Quarterly Physical Connection Test and Maintenance Report form, if the administrative authority and/or the supplier of water□s representative was present during the tests.

4. The permit holder shall submit the completed Physical Connection Permit Renewal application form to the Department, along with the completed Quarterly Physical Connection and Maintenance Report forms for the preceding year required by N.J.A.C. 7:10-10.6.

5. The Department shall review the completed Physical Connection Permit Renewal application form and results of the inspection and pressure testing conducted pursuant to (b)3 and 4 above, and shall notify the applicant-owner of the facility in writing of its decision to renew the physical connection permit or deny the application. If an application is denied, the Department shall state the reason(s) for the denial.

(c) Each physical connection permit issued or renewed pursuant to this section shall expire March 31 of each year, unless otherwise specified in the permit.

(d) Each applicant for an initial physical connection permit or physical connection permit renewal pursuant to this section shall pay the applicable fee set forth at N.J.A.C. 7:10-15.

7:10-10.6 Inspection and testing requirements and procedures for physical connection installations

(a) Each physical connection installation shall be inspected and tested as follows:

1. A test for tightness under prevailing pressure conditions shall be conducted as required pursuant to N.J.A.C. 7:10-10.5(a) for an application for an initial physical connection permit and at least once every three months under an existing physical connection permit pursuant to N.J.A.C. 7:10-10.5(b).

2. An internal inspection shall be conducted within six months prior to the submission of an application for permit renewal pursuant to N.J.A.C. 7:10-10.5(b) and, after reassembly, the owner of the facility shall test the backflow prevention device for tightness to ensure the integrity of the device. An internal inspection shall consist of the dismantling of a double check valve assembly or a reduced pressure zone backflow preventer assembly to visually inspect the integrity of the internal mechanism including the clappers, discs, and facing rings.

3. The Department shall approve a reduction in the frequency of the pressure tests conducted pursuant to (a)1 above if the owner of the facility in which the physical connection installation is located demonstrates to the Department that the facility is not in operation during any time in a calendar quarter.

4. A reduced pressure zone backflow preventer assembly shall not be subject to the internal inspection requirement of (a)2 above except for routine maintenance as specified by the manufacturer, or for investigation of a malfunction, or as specifically required by the supplier of water.

(b) The inspection and testing required pursuant to (a) above shall be conducted either by an authorized representative of the owner of the facility where the backflow prevention device is installed in the presence of an authorized representative of the administrative authority and/or the supplier of water, or by a certified tester who holds a valid backflow prevention device tester certificate issued by a certifying agency approved by the Department pursuant to N.J.A.C. 7:10-10.8.

1. The owner of the facility may only select certified testers from the most current list of certified testers supplied by the certifying agency to the Department pursuant to N.J.A.C. 7:10-10.8(f).

2. The administrative authority and/or the supplier of water may require that an authorized representative of the administrative authority or supplier of water be present to witness the inspection and tests conducted by a certified tester.

3. If the tests and inspections are performed by a certified tester, the owner of the facility shall mail copies of the Quarterly Physical Connection Test and Maintenance Report to the administrative authority and to the supplier of water within five days of conducting the tests and inspections. The Quarterly Physical Connection Test and Maintenance Report form may be obtained from the Department at the Bureau of Safe Drinking Water, CN 426, Trenton, New Jersey 08625.

(c) Any test of a physical connection installation conducted by an authorized representative of the Department as part of an investigation or inspection pursuant to N.J.A.C. 7:10-10.2 or any other provision of this chapter shall not be considered as a substitute for the inspection and testing required pursuant to (a) above.

(d) The procedures for testing a double check valve assembly are as follows (see Figure 1 in Appendix B):

1. Utilizing the differential pressure gauge and not shutting off number 1 shut-off valve.

i. Step 1 - Test number 1 check valve as follows:

(1) Verify that the number 1 shut-off is open and number 2 shut-off valve is closed;

(2) Connect the high hose to test cock number 2;

(3) Connect the low hose to test cock number 3;

(4) Open test cocks 2 and 3;

(5) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after high hose bleeding is completed;

(6) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after low hose bleeding completed;

(7) Record the differential gauge pressure reading. It should be a minimum of one psi; and

(8) Shut off test cocks 2 and 3 and disconnect the hoses.

ii. Step 2 - Test number 2 check valve as follows:

(1) Connect the high hose to test cock number 3;

(2) Connect the low hose to test cock number 4;

(3) Open test cocks number 3 and 4;

(4) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after high hose bleeding is completed;

(5) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after low hose bleeding is completed;

(6) Record the differential gauge pressure reading. It should be a minimum of one psi; and

(7) Shut off test cocks 3 and 4 and disconnect the hoses.

iii. Step 3 - To check tightness of number 2 shut-off valve, both the number 1 and number 2 check valves shall be tight and holding a minimum of one psi. Also, little or no fluctuation of inlet supply pressure can be tolerated. The testing is performed as follows:

(1) Connect the high hose to test cock number 2;

(2) Connect the low hose to test cock number 3;

(3) Open test cocks numbers 2 and 3;

(4) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after bleeding of the high hose is completed;

(5) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after bleeding of the low hose is completed;

(6) Record the differential gauge pressure reading. It should be a minimum of one psi;

(7) Connect the bypass hose to test cock number 4 and open test cock number 4;

(8) Open the high side control needle valve and the bypass hose control needle valve on the test kit. (This supplies high pressure water downstream of check valve number 2); and

(9) Close test cock number 2. (This stops the supply of high pressure water downstream of number 2 check valve). If the differential pressure gauge holds steady, the number 2 shut-off valve may be recorded as being tight. If the differential pressure gauge drops to zero, the number 2 shut-off valve shall be recorded as leaking.

(A) With a leaking number 2 shut-off valve, the device is, in most cases, in a flow condition, and the previous test readings taken from Step 1 and Step 2 are invalid. Unless a non-flow condition can be achieved, either through the operation of an additional shut-off downstream, or the use of a temporary compensating by-pass hose, accurate test results will not be achieved. The tester shall retest until valid results are achieved.

iv. This completes the standard field test for a double check valve assembly. Prior to removal of the test equipment, the tester should ensure that the number 2 shut-off valve is opened, thereby reestablishing flow and the test kit drained of water.

(e) The procedures for testing a reduced pressure zone backflow preventer assembly are as follows:

1. Install test equipment as shown in Figure 2 in Appendix B.

i. Step 1 - Test to ensure that the first check valve is tight and maintains a minimum pressure of five psi differential pressure as follows:

(1) Verify that the number 1 shut-off valve is open. Close the number 2 shut-off valve. If there is no drainage from the relief valve, the first check can be assumed to be tight;

(2) Close all test kit valves;

(3) Connect the high pressure hose to test cock number 2;

(4) Connect the low pressure hose to test cock number 3;

(5) Open test cocks number 2 and number 3;

(6) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after the high hose bleeding is completed;

(7) Open the low side bleed needle valve on test kit bleeding air from the low hose. Close the low side bleed needle valve after the low hose bleeding is completed; and

(8) Record the differential gauge pressure. It should be a minimum of five psi.

ii. Step 2 - Test to ensure that the second check valve is tight against backpressure as follows:

(1) Leaving the hoses hooked up as at the conclusion of Step 1 in (e)1i above, connect the bypass hose to test cock number 4;

(2) Open test cock number 4, the high control needle valve and the bypass hose control needle valve on the test kit. This supplies high pressure water downstream of check valve number 2. If the differential pressure gauge remains steady, and no water comes out of the relief valve, the second check valve may be recorded as tight. If the differential pressure gauge shows a drop in pressure and water comes out of the relief valve, the second check shall be recorded as leaking;

(3) To check the tightness of the number 2 shut-off valve, leave the hoses hooked up the same as at the conclusion of Step 2 above, and then close test cock number 2. This stops the
supply of any high pressure water downstream of check valve number 2. If the differential pressure gauge reading holds steady, the number 2 shut-off valve may be recorded as being tight. If the
differential pressure gauge drops to zero, the number 2 shut-off valve shall be recorded as leaking;

(A) With a leaking number 2 shut-off valve, the device is, in most cases, in a flow condition and the previous readings taken from Step 1 and Step 2 are invalid. Unless a non-flow condition can be achieved, either through the operation of an additional shut-off downstream, or the use of a compensating temporary bypass hose, (see Figure 2A, Appendix B) accurate test results will not be achieved. The tester shall retest until valid results are achieved.

iii. Step 3 - Check that the relief valve opens at a minimum pressure of two psi below inlet pressure, as follows:

(1) With the hoses hooked up the same as at the conclusion of Step 2 in (e)1ii above, slowly open up the low control needle valve on the test kit and record the differential pressure gauge reading at the point when the water initially starts to drip from the relief valve opening. This pressure reading should not be below two psi.

iv. This completes the standard field test for a reduced pressure zone backflow preventer assembly. Prior to removal of the test equipment, the tester should ensure that the number 2 shut-off valve is opened, thereby reestablishing flow and test kit drained of water.

(f) The results of the pressure tests conducted pursuant to (d) and (e) above shall be recorded on the Quarterly Physical Connection Test and Maintenance Report form submitted with either the initial or renewal application form as specified at N.J.A.C. 7:10-10.5(a) or (b) as appropriate.

1. The Quarterly Physical Connection Test and Maintenance Report form is available from the Department and includes the following information:

i. The date of pressure test and inspection;

ii. The physical connection permit number;

iii. The make, type, size, model, and serial number of the backflow prevention device;

iv. The facility name and address;

v. Pressure test and internal inspection results; and

vi. A certification of the certified tester (if applicable), administrative authority and supplier of water.

(g) The owner of a facility shall repair and retest within 30 days any approved physical connection installation which fails a pressure test and/or an internal inspection. If repairs are not possible and a new physical connection is required, the facility owner shall secure approval from the Department of the new backflow prevention device as specified in N.J.A.C. 7:10-10.7.

(h) Any test kit utilized to conduct the tests pursuant to this section shall be calibrated in accordance with the recommendations of the test kit manufacturer.

7:10-10.7 Physical connection permit modifications; termination of physical connection permits on removal of physical connection installations

(a) To effect an administrative change to an existing physical connection permit, the holder of the physical connection permit shall notify the Department in writing within 14 days of such change. The notification shall specify the permit holder's name, permit number, and address, and shall describe the administrative change. An administrative change to an existing physical connection permit is required for any one or more of the following:

1. A change in permit holder's name and/or mailing address;

2. A change in ownership of the facility;

3. A change in any manufacturing process that may have an impact on the public community water system□s water supply; and/or

4. A change in tenancy of the facility in which the physical connection installation is located.

(b) A holder of an existing physical connection permit who seeks to make any of the below-listed modifications to an approved physical connection installation shall submit a written request for approval to the Department. The request for approval and an application for an initial physical connection permit as required pursuant to (c) below shall specify the permit holder's name, permit number, and address, and shall describe the proposed modification(s). A written request for approval is required for any one or more of the following:

1. Replacement of a backflow prevention device, except as provided at (d) below;

2. Installation of additional backflow prevention devices on water service lines from the public community water system; or

3. Installation of a new service connection from the public community water system.

(c) In addition to the written request for approval required pursuant to (b) above, the holder of an existing physical connection permit shall submit an application in accordance with the requirements of N.J.A.C. 7:10-10.5(a) to modify the existing physical connection permit for either of the modifications specified at (b)2 and (b)3 above, or for the modification specified at (b)1 above if the replacement of the backflow prevention device is the replacement of a double check valve assembly with a reduced pressure zone backflow preventer assembly pursuant to N.J.A.C. 7:10-10.3(b) and (c).

(d) Notwithstanding the requirements of (c) above, an application to modify an existing physical connection permit is not required for the replacement of a reduced backflow preventer assembly with another reduced backflow preventer assembly of the same kind and size.

(e) The Department shall terminate a physical connection permit when the physical connection permit holder removes an approved physical connection installation in accordance with the following procedure:

1. The permit holder shall notify the supplier of water and the administrative authority within seven days after the permit holder removes the approved physical connection installation;

2. When one or more of several approved physical connection installations is removed from a facility, an authorized representative of the supplier of water and/or the administrative authority shall visually inspect and certify in writing to the owner of the facility that the approved physical connection installation or installations have been removed and that the remaining physical connection installation or installations meet the requirements of N.J.A.C. 7:10-10.2(a);

3. When all approved physical connection installations are removed from a facility, an authorized representative of the supplier of water and/or the administrative authority shall visually inspect and certify in writing to the owner of the facility that the unapproved water supply has been rendered inoperable;

4. Within seven days of receipt by the facility owner of the written certification required under (e) 2 or 3 above, the owner of the facility shall submit to the Department a copy of the
certification and a written explanation of the reason(s) for the removal of the approved physical connection installation or installations, identifying which installations have been removed, and, in the case of removal of all installations pursuant to (e) 3 above, stating that the unapproved water supply has been rendered inoperable;

5. The Department shall terminate the applicable physical connection permit upon receipt of the certification and explanation required pursuant to (e) 4 above, and shall send written confirmation of the termination to the owner of the facility, the administrative authority, and the supplier of water. The Department reserves the right to inspect the site of the removed physical connection installation(s) to ensure compliance with this subchapter.

7:10-10.8 Requirements for approval as a certifying agency

(a) Any person, organization or corporation wishing to be approved by the Department as a certifying agency to certify individuals as certified testers of backflow prevention devices shall meet the requirements of this section.

(b) To apply for approval as a certifying agency to conduct training courses and examinations for the purpose of certifying individuals as certified testers pursuant to the requirements of this subchapter, the applicant-certifying agency shall submit to the Department for approval a certification program that describes the training course and materials for certified testers, and identifies and describes the qualifications of the course instructors and examiners.

(c) The Department shall review the application for approval as a certifying agency submitted pursuant to (a) above and approve or deny the application based on the following factors:

1. The certifying agency shall conduct courses consisting of a minimum of 26 hours of lecture on the theory of backflow prevention and six hours of practice in the testing of backflow prevention devices;

2. The certifying agency shall administer a written exam on the theory of backflow prevention and a practical exam on the testing and inspection of double check valve assemblies and reduced pressure zone backflow preventer assemblies made by different manufacturers whose backflow prevention devices are in common use;

3. The certifying agency shall employ course instructors who have at least 5 years experience in the public water system industry with direct knowledge of backflow prevention theory and practice; and

4. The certifying agency shall issue certified tester certificates only to those individuals who successfully complete the course and receive a passing grade of 70 percent or higher for the written theory examination and of 80 percent or higher for the practical examination.

(d) Each approved certifying agency shall retain a record of course attendees and the grades received by each attendee on the certification examination for a minimum period of five years.

(e) Each approved certifying agency shall establish minimum standards for the periodic (at least every three years) re-certification of certified testers.

(f) An approved certifying agency shall submit to the Department a list of certified testers as follows:

1. The list shall be in printed and digitized forms in approved formats; and

2. The list may be submitted as often as the approved certifying agency deems necessary to reflect an accurate listing of all certified testers, but not less than once per calendar year, in order for the certifying agency to retain its approved status.

(g) The Department shall revoke its approval of a certifying agency if it determines that the certifying agency is not in compliance with any of the requirements of this section.

1. The Department shall notify a certifying agency in writing of its determination that the certifying agency is not in compliance with the requirements of this section.

2. The Department shall revoke approval of the certifying agency if such certifying agency does not achieve compliance within 90 days of its receipt of the notice of noncompliance pursuant to (g) 1 above.

3. The Department shall notify all holders of existing physical connection permits within 30 days of the date of revocation of an approval of a certifying agency pursuant to (g) 2 above.

(h) This section shall become operative 180 days after the effective date of this chapter.

7:10-10.9 Cross connection control by containment

(a) In conjunction with the requirements of the preceding sections of this subchapter and the requirements of the Plumbing Subcode of the New Jersey State Uniform Construction Code, N.J.A.C. 5:23-3.15, for the prevention of illegal plumbing cross-connections, and with any other State or local requirements for the practice or procedure known as "cross-connection control by containment," the owner of a public community water system may require any of its customers to install backflow prevention devices on the public community water system service line(s) when:

1. The customer is a facility with cross-connection hazards as defined at N.J.A.C. 7:10-1.3 and listed in Appendix A of this subchapter, if the supplier of the water determines that the facility presents a threat to the public community water system's water quality; or

2. The customer is not a facility with cross-connection hazards but such facility contains a substance, uses a process, or utilizes water in a manner which may contaminate a public water system.

(b) Any owner of a public community water system who requires the installation of a backflow prevention device pursuant to (a) above shall have a cross connection control plan in effect which has been developed in accordance with the United States Environmental Protection Agency's "Cross-connection Control Manual," June 1989, EPA 470/9-89 007, as revised and/or supplemented from time to time, and which has been approved by the Department.

7:10-10.10 Requests for adjudicatory hearings

An applicant for a permit under N.J.A.C. 7:10-10.5, for a certification under N.J.A.C. 7:10-10.8, or any certifying agency whose approval has been revoked by the Department pursuant to N.J.A.C. 7:10-10.8(g), or any person subject to the limitation on third party appeal rights set forth in P.L. 1993, c. 359 (N.J.S.A. 52:4B-3.1 through 3.3), who believes himself or herself to be aggrieved with respect to decisions made by the Department pursuant to this subchapter may contest the decision and request an adjudicatory hearing pursuant to Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. and the New Jersey Uniform Administrative Procedure Rules, N.J.A.C. 1:1, in accordance with the appeal procedures set forth at N.J.A.C. 7:10-11.17.

APPENDIX A

FACILITIES WITH CROSS-CONNECTION HAZARDS

The following is list of the types of facilities which are considered as possible cross-connection hazards.

I. Medical Facilities

1. Hospitals
2. Clinics
3. Laboratories
4. Veterinary hospitals/clinics
5. Nursing and convalescent homes
6. Physical therapy clinics
7. Morgues
8. Mortuaries
9. Autopsy facilities
10. Embalmers
11. Medical offices with radiographic, physical therapy, and/or laboratory facilities.

II. Treatment plants

1. Sewage treatment plants
2. Waste water treatment plants
3. Industrial waste treatment plants
4. Pumping stations (sewage, waste water, industrial waste)

III. Commercial manufacturing/storage

1. Automotive plants
2. Aircraft/Missile plants
3. Beverage bottling plants
4. Breweries/distilleries
5. Chemical plants (manufacturing, use, storage, treatment, disposal)
6. Car wash facilities (automatic or selfserve)
7. Dairies and cold storage plants
8. Metals manufacturing plant (Cleaning, processing, refining, fabricating)
9. Paper and paper product plants
10. Petroleum or gas processing or storage facilities
11. Photographic film processing plants
12. Plating plants
13. Power plants
14. Radioactive materials or substances plants or handling facilities
15. Rubber plants (natural or synthetic rubber production)
16. Sand, gravel, concrete or asphalt plants
17. Technical schools, colleges, and universities
18. Solar heating systems (direct or auxiliary)
19. Temporary services (street cleaners, tank trucks) using hydrants
20. Waterfront facilities (docks, marinas, etc.)
21. Food processing (manufacturing, canning, packaging)

IV. Buildings

1. Building with sewage ejectors
2. Building with water booster pump and/or water storage tank
3. Supermarkets
4. Restaurants
5. Schools, research facilities, and any buildings with laboratories
6. Buildings with fire service
7. Warehouses used for storage of hazardous materials
8. Factories
9. Shopping malls

SUBCHAPTER 11: STANDARDS FOR THE CONSTRUCTION OF PUBLIC COMMUNITY WATER SYSTEMS

7:10-11.1 Purpose and scope

This subchapter establishes the permit requirements and standards for the design and construction of new or modified public community water systems.

7:10-11.2 Penalties

Violation of any provision of this subchapter may subject the owner of a public community water system to an enforcement action and penalty in accordance with the State Act and N.J.A.C. 7:10-3.

7:10-11.3 Deviations from construction standards

(a) The Department shall issue a permit to construct a public community water system that deviates from the standards and requirements of this subchapter if the permit applicant establishes that the proposed public community water system provides adequate protection of the water system's water supply as defined at N.J.A.C. 7:10-11.4. The Department shall review such a permit application using a conservative evaluation of data submitted by the applicant pursuant to (b) below.

(b) An applicant for a permit to construct a public community water system that deviates from the standards and requirements of this subchapter shall submit analytical and survey determinations which demonstrate either of the following:

1. That source of water supply is adequately protected by natural means; or

2. That of a comparable water system or pilot plant has been operated for a period of time sufficient to demonstrate that adequate protection of the water supply.

7:10-11.4 Additional definitions and general provisions

(a) In addition to the words and terms defined at N.J.A.C. 7:10-1.3, the following terms are defined for the purposes of this subchapter:

1. "Adequate protection" means construction methods which ensure that the water that reaches consumers complies continuously with the physical, chemical, and bacteriological requirements of the State Primary Drinking Water Regulations at N.J.A.C. 7:10-5. The term "adequately protected" shall be construed accordingly.

2. Dechlorination means the partial or complete removal of residual chlorine by any chemical or physical process.

3. "Firm capacity" means adequate pumping equipment and/or treatment capacity (excluding coagulation, flocculation and sedimentation) when the largest pumping or treatment unit is out of service.

4. "Major pollutant source" means any wastewater treatment plant discharge, any documented ground water contamination, any liquid chemical or fuel storage facility with capacity greater than 2,000 gallons, any military facility, any industrial treatment lagoon, any automotive service station, any landfill (open, closed or inactive), any industrial facility (including dry cleaning facilities), any septic system, any

cemetery, any salt storage facility, any highway maintenance yard, any truck and/or bus maintenance yard, any underground fuel and chemical storage tank with a capacity of 2,000 gallons or more, any livestock operation, any body of surface water containing salt or brackish water, any quarrying and/or mining facility, any asphalt and concrete manufacturing facility, and any open dump or junkyard. 5. "Minor pollutant source" means any liquid chemical or fuel storage tank with capacity less than 2,000 gallons, any stormwater detention or retention basin, any sanitary sewer line, any sanitary sewer manhole, any sanitary sewer pump station, any septic tank or leaching field, any sewage treatment facility, any active farm, and any facility to which the Department has issued a discharge permit pursuant to N.J.A.C. 7:14A.

6. “Modify” means to make any change to a public community water system which results in the addition or replacement of a water supply, treatment process, pumping station, storage tank, or distribution system. The terms “modification” and “modified” shall be construed accordingly. The cleaning and lining of water mains, and the replacement of valves, hydrants, pumps and controls do not constitute a modification to the water system.

7. "Peak daily demand" means:

i. For existing water systems, the average daily demand as recorded in the peak month of the prior 5 years plus anticipated water demand calculated in accordance with N.J.A.C. 7:10-12.6(b).

ii. For proposed water systems, an estimation of the anticipated water demand in accordance with N.J.A.C. 7:10-12.6(b).

8. “Post-chlorination” means the addition of chlorine to the treated water at a water treatment plant effluent, following all other treatment processes, for the purpose of disinfection.

9. “Pre-chlorination” means the addition of chlorine to the water at a water treatment plant, prior to other treatment processes, for disinfection, oxidation, and control of tastes, odors and microbiological growth.

10. "Pretreatment" means a water treatment plant process employed to prepare water for filtration, including mixing, coagulation, flocculation or softening, and sedimentation.

11. “Superchlorination” means the addition of chlorine to the water at a water treatment plant in amounts sufficient to produce chlorine residuals so large as to require dechlorination.

(b) In the case of an extensive or complex proposed public community water system or one that deviates from the standards and requirements of this subchapter as provided in N.J.A.C. 7:10-11.3, the Department recommends that the applicant request a preapplication conference to discuss preliminary plans and data.

(c) For the purposes of this subchapter and to determine the degree of treatment required, the following classifications apply to natural waters intended as sources of supply for potable water purposes:

1. All water obtained from a subsurface source by a well is classified as ground water.

2. All water obtained from a river, stream, drainage basin, natural lake, artificial reservoir, or impoundment above the water supply intake, and all ground water in which the average total coliform concentration exceeds 50 per 100 milliliters in any one month, based on weekly monitoring, is classified as surface water.

3. All water obtained from a subsurface source by a well, when the well has a casing length less than 50 feet or has a screen or uncased borehole within 50 feet of a surface water body (unless in a confined aquifer or a low risk formation) or when the water has significant occurrences of insect, or other macroorganisms, algae, or large diameter pathogens such as Giardia lamblia, Cryptosporidium, or fecal coliform, or when the water has significant and relatively rapid shifts in characteristics such as turbidity, temperature, conductivity, or pH, that closely correlate to climatological conditions, is classified as ground water under the direct influence of surface water.

(d) The Department may terminate review of and return without prejudice any application for a permit under this subchapter which has remained technically deficient for three years after the date of submittal.

(e) The review of permit applications under this subchapter is limited to safety, sanitary and certain hydraulic engineering features of public health significance. The review does not include the examination of structural, hydraulic, mechanical, electrical design, or economic factors. The Department reserves the right to deny an application for a permit to construct a public water system that, in the Department's determination, presents a danger to the public health or safety.

(f) The approval of other regulatory programs within the Department and/or of the Board of Public Utilities (BPU) may be required for a public community water system. The Department recommends that an applicant for a permit under this subchapter contact the respective regulatory programs regarding water diversion rights, well drilling permits, stream encroachment permits, and wetlands permits, and the BPU regarding approval of municipal franchises, rates, and charges.

7:10-11.5 Permit application requirements

(a) No person shall construct or modify a public community water system prior to obtaining a permit from the Department pursuant to this section.

1. All applications for a permit to construct or operate a new public community water system shall comply with the requirements set forth at N.J.A.C. 7:10-13.3 and 13.4.

(b) An application for a permit to construct and/or modify a public community water system shall be submitted in accordance with this section and shall include plans, specifications and an engineer's report prepared pursuant to (c)through (e) below by a qualified New Jersey licensed professional engineer. The plans shall bear the engineer's seal as required by N.J.S.A. 45:8-45.

(c) A complete permit application shall include all of the following:

1. A completed Standard Application Form obtained from the Department which shall include the name and address of the applicant, the licensed professional engineer’s description of the project with an estimate of the project cost, and signatures

of the applicant and the licensed professional engineer. Machine copies are not acceptable.

i. The application form shall be signed by an official (with title) or an authorized agent of the public body, company, or corporation that will own and/or operate the public community water system. If the application is signed by an authorized agent, a certified copy of the authorization shall be attached.

(1) A copy of a resolution issued by the municipality or municipal utilities authority which consents to the public community water system providing water service within a specified area or territory of concern (commonly known the as “franchise area”) pursuant to N.J.S.A. 48:2-14; and

(2) A copy of the application filed with the Board of Public Utilities (BPU) which petitions the BPU for approval of the municipal consent for the franchise area, for approval of the initial rates and tariffs applicable to the public community water system and for approval of the issuance of stock and assumption of debt by the public community water system pursuant to N.J.S.A. 48:2-1 et seq. and N.J.A.C. 14:1.

2. The plans, specifications and engineer's report specified at (d), (e) and (f) below;

3. A copy of a Pinelands Certificate of Filing, Notice of Filing, Certificate of Completeness, Preliminary Zoning Permit, resolution of the Pinelands Commission approving the project or a letter from the Pinelands Commission indicating that the project is exempt from Pinelands Commission review; and

4. The applicable permit application review fee pursuant to N.J.A.C. 7:10-15.

(d) The engineer's report shall, when pertinent, contain the following:

1. Description of any existing water system as related to the proposed water system;

2. Information on present and anticipated future population served by the public community water system together with present and anticipated water requirements and the relationship of the proposed water system to these factors. The design period should, in general, be 25 years unless a shorter design period can be justified;

3. Information on the source of water supply, as follows:

i. For a surface water source, the dependable yield; characteristics of the quality of the water in relation to treatability; information from a sanitary survey on the major and minor pollutant sources; and existing or proposed measures to ensure adequate protection of the supply;

ii. For a ground water source or a ground water source under the direct influence of a surface water, a general description of proposed well construction; data on the geological strata expected to be penetrated and the effect that such strata may have on the quality of the water; available information on the dependable yield and water quality; test well findings (if any); major and minor pollutant sources within a radial distance of 500 feet or the zone of capture of the well, whichever is greater, or, in the case of a creviced or fissured rock formation or unconfined aquifer, within a larger area as determined pursuant to N.J.A.C. 7:10-11.7; a general description of the construction

features proposed to protect the well from major and minor pollutant sources; a copy of the proposed well formation log showing the types and thicknesses of formations penetrated by the well (if this log is not available at the time of application, it must be submitted to the Department when the well has been constructed); and a copy of the well pump test, pursuant to N.J.A.C. 7:10-11.7;

4. A description of pumping equipment, including capacity of pump units and type of drive, general information on the arrangement of facilities, standby power (if provided), control of operation, and alarm systems;

5. A description of proposed treatment processes, including data demonstrating that the processes will produce treated water that meets the requirements of the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7, and information on the type and application rate of any drinking water additive and the capacity of each feed unit;

6. A description of proposed methods for the treatment and disposal of sludge and filter backwash;

7. A description of sanitary safeguards of the storage, transmission, and distribution system;

8. A conceptual description of the entire water system to be built if the proposed system is to be built in stages;

9. Total estimated cost of construction of the proposed system, and in addition estimated legal and engineering fees, and the estimated cost of all related infrastructures;

10. In the case of modification or an addition to an existing water treatment plant, plans for maintaining existing treatment units in operation during construction or for providing an adequate alternative water supply; and

11. If any existing treatment unit will be shut down during construction, a schedule for delivering water meeting the requirements of the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7 during the shutdown period.

(e) The specifications shall describe the sanitary safeguards of the proposed system, including the method or methods of disinfecting facilities. Specifications regarding the general contract, notice to bidders, and detailed specifications for items such as doors, windows, fittings, fixtures, steel work, concrete and wood are not required to be submitted for purposes of this subchapter.

(f) The plans shall meet the following requirements:

1. Plans shall include construction drawings in sufficient detail to facilitate examination of and comprehension of the proposed water system. The north point and datum shall be noted on each drawing. Topography shall be shown by elevations, contours or other suitable methods. Where pertinent, roads, streams, municipal boundaries, flood elevations, and other relevant geographical features shall be shown, including locations of watersheds, reservoirs, wells and well fields, water treatment plants, existing water transmission mains and distribution mains, water storage tanks, fire hydrants, and major and minor pollutant sources. In the case of transmission and distribution mains, an index page shall be supplied showing by number the area and districts covered by the various sheets;

2. Plans shall be drawn to standard scale on uniformly sized sheets. Each sheet shall contain necessary titles, scales, dates, water system owner's name and a general description of the water system. Each sheet shall bear the engineer's seal as required by N.J.S.A. 45:8-45;

3. The preferred drawing size is 24 inches by 36 inches, including suitable margins. Lettering shall be sufficiently large to permit photo-reduction, and all plans shall have graphic scales;

4. Sheets shall be bound together;

5. All topographical symbols and conventions shall be defined. Water transmission and distribution mains to be constructed for the portion of the water system for which the permit to construct is sought, if the proposed system is to be built in stages, and/or in the future shall be shown by suitable conventions. Where applicable, existing sanitary sewers and combined sewers shall be shown by clear designations;

6. Surface elevations shall be drawn for all relevant parts of the proposed water system, with dimensions sufficient to permit verification of the operations of the system. Datum shall be stated;

7. Plans for intake structures, pumping equipment, water treatment plants, and similar structures shall include a generalplan showing the various treatment and pumping units and structures of the proposed water system, and, except as provided in ii. below, detail plans for all such units and structures:

i. All plans shall show longitudinal and transverse sections sufficient to explain the construction of each treatment unit, including the hydraulic profile through the plant, when applicable; and

ii. Pursuant to N.J.A.C. 7:10-11.4(e), only the detail plans relevant to the examination conducted by the Department must be included. Detail drawings for the guidance of builders or contractors (e.g., structural details, reinforcement details, details of heating, ventilation, electrical work, architectural details, and the electrical-mechanical details of pumps, engine and machinery) need not be included;

8. Plans for wells shall include site plans, schematic drawings and detail drawings as follows:

i. Site plans for wells shall show:

(1) The topography and the location of existing and/or planned wells in the wellfield for the proposed water system. Each well shall be given an identifying number in chronological order of planned construction;

(2) The identification of the ownership of all land within a fifty foot radius of each well and the location of all potential major and minor pollutant sources; and

(3) The elevation of each well head above a common datum plane and the 100 year flood elevation.

ii. Schematic drawings for wells shall include as much detail as practicable, and shall show:

(1) The length, size and location of casings and screens;

(2) The method of sealing off shallow ground water and waters from other aquifers from entering the well, including the sealing of the annular space between the drill hole and the outer casing and the surface strata;

(3) Drawing(s) of the pumping unit(s), including prime and standby power sources;

(4) The plan and section view of the pump house or any similar structure; and

(5) The method of connecting the well or other ground water source with the distribution system of the existing or proposed water system.

iii. Detail drawings for wells shall show:

(1) Details of the well head, including elevations of protective curbing, top of casing, pump house floor and surrounding grade;

(2) The method of sealing the well head against surface water contamination;

(3) The location of well vents and the methods for protecting them against contamination; and

(4) The well head piping details, showing locations of check valve, surge or air relief valve, shutoff valves, sampling taps, water level indicator, flow meter, discharge pressure gauge, and blowoff connection to permit pumping to waste.

9. Plans for water main extensions shall include:

i. Site plans showing the location of the proposed water main, the right-of-way or easement, sanitary and storm sewers and other utilities in the proposed construction area;

ii. Elevations and details sufficient to show clearances and construction methods in the vicinity of sanitary sewers;

iii. The methods of connecting to the existing water supply and maintaining adequate protection of the existing water supply; and

iv. The locations of valves, hydrants, blowoffs and flushing connections.

(g) The Department shall make a preliminary review of each application as follows:

1. If the application does not contain all documents and information required pursuant to (a) through (e) above, the Department shall within 20 working days of receipt of the application, either return the application or advise the applicant in writing as to the additional information required to make the application administratively complete and the date by which the additional information must be received by the Department. If an application is returned, the applicant will be advised in writing as to the additional information required to make the application complete.

2. If the application contains all documents and information required pursuant to (a) through (e) above and is determined to administratively complete, the Department, within 20 working days of receipt of the application, shall so advise the applicant in writing.

(h) The Department shall make a technical review of each application within 60 working days after it declares the application administratively complete as follows:

1. If the application does not contain sufficient technical information as required pursuant to (c) through (e) above or if the technical information requires clarification, the Department shall so advise the applicant in writing and establish a date by which additional or clarifying information must be received by the Department. If additional or clarifying information is not received by the specified date, the Department may:

i. Return the application;

ii. Extend the date by which the applicant must provide the additional or clarifying information; or

iii. Deny the application

(i) The Department will perform a detailed analysis of the technically complete application and will develop a staff recommendation to issue the permit or deny the application. The staff recommendation shall include any conditions to be attached to the permit if the recommendation is to issue the permit or an explanation of the reasons for denial if the recommendation is to deny the application.

(j) The Department shall issue a permit, with any conditions deemed appropriate by the Department, for the construction of the proposed water system and distribution of potable water from said water system pursuant to the requirements of this chapter, or the Department shall deny the application in writing with an explanation of the reasons for denial.

7:10-11.6 General requirements for source, treatment, storage and distribution components

(a) The components of a public community water system, including source, treatment, storage and distribution facilities shall be designed and constructed to meet all the demand requirements imposed on the water system and shall have the firm capacity to meet the applicable peak daily demand as defined at N.J.A.C. 7:10-11.4(a).

(b) Regulations for instrumentation are as follows:

1. Each water supply source shall be equipped with a totalizing flow meter. For water systems for which the total average flow exceeds 0.1 MGD, flow recording equipment shall be installed for all wells and pump stations.

2. Each water supply source shall be equipped with instrumentation sufficient to ensure the proper operation of the treatment plant associated with the water supply source.

3. There shall be devices and/or equipment to determine the water level elevation in each distribution storage tank.

4. Each pump shall be equipped with a discharge pressure gauge.

(c) Every water treatment plant shall be equipped, at a minimum, with analytical equipment for the determination of chlorine residual concentrations, and, if treating surface water, with equipment for the measurement of turbidity. In addition, every water treatment plant shall be equipped with analytical equipment for water quality control tests appropriate to the type of water treatment used. A laboratory located at a water treatment plant that provides only day-to-day water quality control testing need not be a certified laboratory, but the analytical methods and procedures it uses must be in accordance with Standard Methods for the Examination of Water and

Waste Water, 17th Edition, as amended and supplemented, incorporated herein by reference. Standards Methods is available from the American Public Health Association, 1015 Fifteenth Street, Washington, DC 20005.

(d) Upon completion of the construction of any component of a public community water system, including source, treatment, storage, and distribution mains, and before such component is placed into service, all surfaces which may come in contact with adequately protected water shall be disinfected in accordance with American Water Works Association (AWWA) standards for disinfection of facilities ANSI/AWWA-C651 through C654, as amended and supplemented, incorporated herein by reference. AWWA standards may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235.

(e) Cross connections are prohibited as follows:

1. Cross connections are prohibited in any water treatment plant between any pipe or conduit carrying finished water and another pipe or conduit carrying wastewater, raw water, or water in any prior stage of treatment.

2. No conduit or chamber containing finished water shall have a common partition with another conduit or chamber containing waste filter wash water or water in any prior stage of treatment, unless the common partition is made completely impermeable by use of an acceptable protective membrane.

3. Sludge draw-off lines, filter backwash discharge lines, well blow-off lines, and overflows from any water treatment or treated water storage reservoir or tank shall not be connected directly into any storm drain, sanitary sewer, or water source, but shall be protected by a suitable one way air-gap-delivery connection to ensure that no backflow can occur under any condition.

4. Priming systems for pumps shall prevent the contamination of adequately protected water.

5. Sump pumps for underground pump stations shall not discharge into sanitary sewers.

(f) Regulations for treatment and disposal of water treatment plant process wastes are as follows:

1. Water treatment plant process waste, such as sludge from coagulation and sedimentation tanks and filter backwash water, shall ordinarily be treated before being discharged into any waters of this State. The degree of treatment will be contingent upon the character of the waste and its effect upon the receiving waters. The discharge of process waste is prohibited except in accordance with the requirements of a New Jersey Pollution Discharge Elimination System (NJPDES) permit issued pursuant to N.J.A.C. 7:14A.

2. When the water treatment plant process waste is required to be treated on site, the minimum treatment of water treatment plant process waste shall be by plain sedimentation in a minimum of two lagoons, shall be provided with a minimum total combined capacity equivalent to 24 hours of wastewater flow.

3. Water treatment plant process waste shall not be discharged to a sanitary sewer system except in accordance with the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:14A, and with written approval from the appropriate sewerage authority.

(g) Regulations for building construction, safety, and security are as follows:

1. Each water treatment plant and pump station shall be housed in a building constructed of durable and fire-resistant materials.

2. Buildings shall be constructed so that surface water will not enter or lie against the building. Normally, the ground floor shall be at least six (6) inches above the surrounding ground. Buildings shall be protected against flooding by locating them above the 100 year flood plain or providing waterproof doors or covers for all openings below that level.

3. All floors, dry wells, meter pits, interconnection chambers, piping galleries and similar structures not intended to contain water shall be self-draining without possibility of backflow. If necessary, sufficient sump pumping capacity shall be provided for the removal of water.

4. Adequate heating, lighting, ventilation and, if required, dehumidification shall be provided.

5. Buildings shall be protected against unauthorized entry and vandalism.

6. Treatment facilities in pits are prohibited.

7. Office space, a workshop, a laboratory, and storage shall be provided, as needed.

8. All surface water treatment plants shall contain drinking water and lavatory facilities for personnel.

9. A safety shower is required in locations where hazardous chemicals are handled pursuant to N.J.A.C. 7:10-11.12(e) and is recommended for all facilities where chemicals are stored or handled.

10. All facilities shall be equipped with necessary safety features, including access ladders, railings at the tanks and walkways, guards around belts and other moving parts, handrails at stairs or steps, adequate ventilation of enclosures, and such special provisions for handling of chemicals as are required pursuant to N.J.A.C. 7:10-11.12. Non-slip treads on stairs shall be provided, and the slope of the stairs shall meet New Jersey Department of Labor requirements. Warning signs shall be posted in hazardous locations. A first aid kit shall be provided.

(h) All water treatment plants, which have a capacity of 1 MGD or more and include filtration treatment, shall have readily available a complete outfit of necessary tools and accessories for the proper operation and maintenance of the facility.

(i) Auxiliary power requirements are as follows:

1. Auxiliary power shall be provided for a water supply source and/or treatment facility when such facility is a primary component of a water system and is indispensable to the effective operation of the water system.

2. Auxiliary power shall be provided for a distribution system pump station when a pump station has to pump continuously into a pressure zone without storage facilities. If needed, pump stations shall be provided with one electrical source, and one standby source either for emergency power generation or direct drive to the pumping equipment.

3. Auxiliary power equipment, when provided or required, shall be designed and have sufficient capacity so as to effectively operate all pumping and water treatment processes in the event of failure of the primary power source for the water system.

(j) Materials and equipment used to construct a public community water system shall meet the following requirements:

1. Material and/or equipment shall not contribute contaminants to the drinking water nor impart any taste and odor to the drinking water.

2. Coating materials that are in contact with adequately protected water shall comply with ANSI/NSF Standard 61, as amended and supplemented, incorporated herein by reference. ANSI/NSF standard 61 may be obtained as provided at N.J.A.C. 7:10-8.2(a).

3. The use of lead in any component of a water system shall meet the following standards:

i. The lead content of solder and flux shall not exceed 0.2 percent by weight;

ii. The lead content of pipes, fittings and any other metallic component shall not exceed eight percent by weight;

iii. Lead packers shall not be used for well construction; and

iv. Lead packers may be used in the repair of cast iron pipe joints.

7:10-11.7 Standards for the construction and development of ground water sources

(a) Any public community water system that uses only ground water sources of supply shall have the firm capacity to meet the applicable peak daily demand as required pursuant to N.J.A.C. 7:10-11.6(a), except as provided in (a)1 below.

1. The Department will approve an interconnection with another public community water system in lieu of a backup well if a contract or other written binding agreement to obtain sufficient water is executed between the owners of the water systems to be interconnected and if it can be shown to the satisfaction of the Department that such an interconnection will enable the public community water system seeking the interconnection to comply with this subsection.

(b) Ground water sources of supply shall be protected as follows:

1. A public community water system shall acquire and control all land within at least a 50 foot radius of any ground water source used for its water supply. Major and minor pollutant sources and non-water system related activities shall be prohibited within the specified area. The public community water system may control the land by lease or easement only with prior written approval of the Department.

i. The Department recommends that a public community water system control and/or obtain a conservation easement to land surrounding a ground water source beyond that required pursuant to (b)1 above for watershed protection and future water supply development. If ground water sources are located in unconfined or bedrock aquifers, the Department recommends the minimum land acquisition, dependent upon well capacity, shown in the table below:

SOURCE CAPACITY (MGD)	LAND REQUIREMENT (ACRES)

0-1	1
> 1-2	2
> 2-3	3
> 3-5	5
> 5	5 + 1/2 acre for each MGD or portion hereof in excess of 5 MGD

ii. The Department recommends that land acquired for the purpose of watershed protection be in up-gradient areas and equivalent to Tier I as defined in the Well Head Protection Plan (WHPP) adopted by the Department pursuant to the Federal Act.

2. Storm and/or sanitary sewer lines, industrial waste lines, septic tanks, distribution boxes and dry wells are prohibited within 50 feet of a well. Any such line within 100 feet of a well shall be of completely watertight construction (that is, steel, reinforced concrete, cast iron, PVC or other suitable material). Sewage disposal fields and seepage pits are prohibited within 200 feet of a well. Cesspools are prohibited within 200 feet of a well.

i. The Department may reduce the distance restrictions under (b)2 above if a well is constructed in a confined aquifer.

3. Manholes and/or connections to a sanitary sewer system are prohibited within 100 feet of a well, unless the well is constructed in a confined aquifer.

(c) The public community water system shall submit as part of the permit application under this subchapter an inventory of all major and minor pollutant sources and an evaluation of their possible impact on the quality of the ground water source as follows:

1. If a well is proposed to be constructed to withdraw water from a confined aquifer, an inventory and evaluation of major and minor pollutant sources within 500 feet of the well and a detailed description of how the well will be protected from the pollutant sources.

2. If a well is proposed to be constructed to withdraw water from an unconfined or consolidated aquifer, a delineation of the well head protection area (WHPA) in accordance with the New Jersey Well Head Protection Plan (WHPP) adopted by the Department pursuant to the Federal Act and an evaluation of major and minor pollutant sources as follows:

i. All major pollutant sources within a distance not greater than either the well's zone of contribution (ZOC) of twelve years time of travel (TOT) or 10,000 feet; and

ii. All minor pollutant sources within the greater distance of either 200 days TOT or 500 feet of the well.

3. Major pollutant sources identified pursuant to (c)2 above that are within either 200 days TOT or 500 feet of the well, whichever is greater, are prohibited unless an appropriate treatment barrier is provided.

4. The supplier of water shall provide an appropriate treatment barrier, or establish a sampling program in order to detect the presence of contamination from any major pollutant source identified pursuant to (c)2 above, if any such source exists in an area bounded by the greater distance of either 200 days TOT or 500 feet from the well and bounded by the lesser distance of either five years TOT or 10,000 feet from the well.

(d) Subject to the provisions of this section, well construction shall meet applicable requirements of the American Water Works Association Standard for Deep Wells, ANSI/AWWA-A100-90 as amended and supplemented, incorporated herein by reference, and N.J.A.C. 7:10-12.14 through 12.21. ANSI\AWWA-A100-90 may be obtained as provided at N.J.A.C. 7:10-11.6(d).

(e) The general requirements for the construction of wells are as follows:

1. Every well intended as a source of water supply for a public community water system shall have a minimum casing length of 50 feet.

2. The on-site work of drilling, constructing, deepening, or increasing the capacity of a well, or any other alteration of a well, shall be conducted under the supervision of a person in possession of a valid master well driller's license issued by the New Jersey Well Drillers Examining and Advisory Board pursuant to N.J.S.A. 58:4A-4.1 et seq.

3. No portion of a public community water supply system well shall be constructed unless a permit is obtained pursuant to this subchapter.

4. During construction, the area surrounding the well shall be maintained in an orderly and refuse-free condition, and surface water shall be diverted away from the well.

5. Water used for the drilling or driving of a well shall be obtained only from a source of known potable quality, or shall have been disinfected to meet the chlorine contact period and chlorine residual requirements pursuant to N.J.A.C. 7:10-11.16(e).

6. Where the threat of salt water intrusion exists, the well shall be constructed with an outer casing, in which the annular space outside the casing is grouted, and an inner casing, with the space between the outer and inner casing grouted for the full length.

7. A well drilled in a rock formation shall have a minimum casing length of 50 feet. The casing shall extend through the overburden and into competent rock for a minimum of 20 feet. The annular space between the well borehole and casing shall be grouted for its full length.

8. The drill and drive method of construction is acceptable if the well is driven into an undersized hole in an unconfined aquifer in an unconsolidated geological formation. All other well drilling methods must provide for well construction with an annular space four inches greater than the inside diameter of the casing to be installed and grouting for the full length of the annular space.

(f) Well casings shall conform to the American Water Works Association Standard ANSI/AWWA-A100-90, as amended and supplemented, incorporated herein by reference. ANSI/AWWA-A100-90 may be obtained as provided at N.J.A.C. 7:10-11.6(d).

(g) Regulations for well screens are as follows:

1. A well screen shall be installed where necessary to ensure delivery of water that is visibly free of sand. The well screen shall permit maximum water transmission without clogging.

2. Each well screen shall comply with American Water Works Association Standard ANSI/AWWA-A100-90 as amended and supplemented, incorporated herein by reference, and available as provided at N.J.A.C. 7:10-11.6(d).

3. Well screens shall not be installed in a manner which permits simultaneous drawing of water from multiple aquifers.

4. Well screens and blanks shall be made of stainless steel or equivalent strengthened corrosion-resistant material.

(h) Regulations for pumping equipment are as follows:

1. The pumping equipment for each well shall be designed and installed to prevent contamination and, where necessary, prevent freezing of the water supply.

2. The pump setting shall be such that the pumping level will not fall below the lowest pump bowl when the well is operated at maximum pump capacity.

3. The pump suction inlet shall be set above the screen and in no case shall it be set in the screened area.

4. The pump setting level shall be such as to ensure that the water level does not fall below the top of the screen.

5. The pumping level of wells drilled in rock shall not fall below the water bearing formation.

(i) Regulations for annular space grouting are as follows:

1. During the grouting operation, the permanent well casing shall be maintained in a centered position within the drill hole.

2. Any temporary outer casing, if used, shall be withdrawn during the grouting operation. If withdrawal is not possible, the temporary outer casing shall be sealed in place by a method approved by the Department.

3. Materials and method of grouting shall be those required pursuant to N.J.A.C. 7:10-12.19.

(j) Regulations for auxiliary well piping and equipment are as follows:

1. The discharge pipe from each well shall be provided with a check valve located between the pump and any blowoff, bypass or other connection to the discharge pipe.

2. A well blowoff shall be located after the check valve. The blowoff shall terminate above ground, and shall be protected against contamination.

3. A shutoff valve shall be located on the discharge pipe, after the blowoff, to allow water to be discharged to waste without entering the distribution system.

4. An air relief valve shall be located between the check valve and the well pump.

5. Each well shall be equipped with a water level indicator, discharge pressure gauge, raw water sampling tap, totalizing flow meter, well casing vent, and protected access to the well to permit the direct measurement of the water level.

6. Each well shall be equipped with instrumentation pursuant to N.J.A.C. 7:10-11.6(b).

7. If the well casing vent is utilized as the access for direct measurement of water level, the inside vent diameter shall not be less than 3/4 of an inch and the well vent shall not be bent at an angle greater than 45 degrees to the well casing.

(k) Regulations for pump testing, sampling and recordkeeping are as follows:

1. Each well shall be tested to determine the water yield. Except as provided in (k) 3 below, such testing shall be run at 120% of design pump capacity and until either the drawdown or the rate of drawdown is stabilized (0.2 ft/hour or less) for a minimum period of six hours. Minimum pumping durations are as follows:

i. Continuous pumping for at least 72 hours in consolidated formations.

ii. Continuous pumping for at least 24 hours in unconsolidated formations or longer when required by the Department under a water supply allocation permit issued pursuant to N.J.A.C. 7:19.

2. Records of flow rate and drawdown shall be made at least at one hour intervals (or more frequent for tests pursuant to N.J.A.C. 7:19-2.2) during the test, and the water levels during the recovery period shall be recorded in accordance with the New Jersey Geological Survey Report GSR 29, Guidelines for Preparing Hydrogeological Reports For Water-Allocation Permit Applications. These guidelines can be obtained from the Department, Maps and Publications Office, P.O. Box 438, Trenton, New Jersey 08625-0438.

3. A pump test may be run at 100% of design pump capacity for a minimum period of 72 hours if stabilized drawdown is achieved and the well is designed so that the pump intake level is not dewatered if the well were to pump continuously for 30 days.

4. For wells in unconfined or rock aquifers, the discharge during a pump test shall be released at a distance where there is no interference or recharge during the test.

5. Water samples shall be taken during the pump test period and examined for bacteriological and chemical quality in accordance with State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and N.J.A.C. 7:10-7.

(l) Regulations for protection of well heads are as follows:

1. The well head shall be constructed so as to ensure the protection of the well from contamination.

2. The casing pipe and protective curbing of all wells shall extend at least 12 inches above the pump house floor or the grade near the well.

3. The pump house floor shall be sloped away from the well head and the floor shall be above the 100 year flood elevation.

4. Well pits are prohibited.

5. The space between the pump column and the inner casing of the well shall have a vent protected with a downfacing elbow or a mushroom type head located above the flood level. All vents shall be screened against the entry of insects.

6. A well under construction shall be capped to prevent contamination until permanent pumping equipment is installed.

(m) Any well with unsuitable water quality that cannot be treated to meet the standards of this chapter, any nonproductive well or any abandoned well shall be sealed in accordance with N.J.S.A. 58:4A-4.1 et seq. and N.J.A.C. 7:9.

(n) Upon completion of well construction and the installation of permanent pumping equipment and before the well is placed in service, the well suction piping, pumping equipment and discharge piping shall be disinfected in accordance N.J.A.C. 7:10-11.6(d).

(o) Additional requirements for ground water sources other than wells are as follows:

1. Where an application for a permit under this subchapter is made for the derivation of water from ground sources, such as a radial collector, infiltration gallery or spring, the provisions of subsections (a) through (n) above shall apply.

2. Such application shall sufficiently detail the proposed construction method so that the Department can fully evaluate the sanitary features of the proposed ground water source. A preapplication conference is recommended.

(p) Any well or other ground water source of supply constructed in accordance with a permit issued under this subchapter shall not be placed in operation until the Department approves the well or source, as follows:

1. Following disinfection of the well or ground water source pursuant to (n) above, the well or source shall be pumped to waste until the water is free of chlorine residual.

2. The Department shall inspect the well or source and test the well or source water to determine compliance with the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7. The well shall stand idle for at least 24 hours prior to such testing and the raw water shall not contain any chlorine residual.

7:10-11.8 Standards for the construction and development of surface water sources and ground water sources under the direct influence of surface water

(a) A supplier of water seeking a permit under this subchapter for a public community water system using a surface water source of supply shall submit for approval and implement a watershed monitoring plan and inventory that includes the following:

1. A record of raw water quality at the point of intake over a one year period. Required water quality data shall include, at a minimum, monthly sampling for physical, chemical, and primary contaminants regulated pursuant to this chapter; quarterly sampling for radiological contaminants, Giardia lamblia, and Cryptosporidium; and weekly sampling for turbidity, temperature and bacteria (total and fecal coliform). Sampling shall be conducted at least once during or immediately after a storm event.

2. An inventory of all major pollutant sources as defined pursuant to N.J.A.C. 7:10-11.4(a)4 located within the watershed and minor pollutant sources as defined pursuant to N.J.A.C. 7:10-11.4(a)5 located within one mile upstream of the water system intake, with an evaluation of their potential impact on water quality.

3. A watershed monitoring and an emergency response plan that includes a regular inspection schedule for the watershed, an inventory of all major pollutant sources within five miles upstream of the water system intake and 500 feet back from the stream banks, and a detailed emergency response plan for a contamination event.

4. A preapplication conference to discuss the requirements of this subsection is recommended.

(b) Each supplier of water with a surface water source of supply shall notify the Department, the New Jersey Department of Transportation, the county planning board, and municipal police and fire departments of the location of each intake and the road drainage areas which may affect water quality. The supplier of water shall identify areas where storm drains bring water from another area or watershed into the watershed area where the intake is located. The supplier of water shall request the Department to notify the supplier of water of applications for discharge permits received and discharge permits issued for locations upstream of the intake on a periodic basis. The supplier of water shall make similar requests of local planning and zoning boards of counties and municipalities upstream of the intake. Also, the county emergency network shall be advised of the drainage area and fire departments shall be provided a map indicating the storm drainage system that flows toward the intake.

(c) Regulations for surface water intake are as follows:

1. All surface water intakes shall be equipped with multiple surface water intake units in order to provide firm capacity (excluding the raw water intake line).

2. Intake structures shall be located and arranged to minimize the impact of surface drainage on water quality.

3. The maximum surface water intake velocity shall not exceed one half foot per second.

4. Where practical, intake structures shall be constructed to permit the selective withdrawal of water from multiple levels of reservoirs.

5. Each intake structure shall be protected by removable or cleanable coarse screens or racks to prevent debris from entering the water system. Fine screens may be used for the purpose of excluding smaller fish and debris from the system.

6. Intake structures are prohibited within 100 feet of a septic system or sanitary sewer line.

7. All mechanical equipment shall be protected against the 100 year flood.

(d) Regulations for surface water and ground water under the direct influence of surface water treatment plants are as follows:

1. Pilot test data shall be submitted for the proposed treatment process.

2. Treatment shall, at a minimum, include coagulation, flocculation, filtration and disinfection.

3. Gravity filtration shall be provided.

4. The treatment plant shall be designed to accommodate powdered activated carbon (PAC) or granular activated carbon (GAC) treatment units.

5. The treatment plant shall have firm capacity to meet peak demand (excluding coagulation, flocculation and sedimentation).

6. Surface water shall be filtered and disinfected in accordance with N.J.A.C. 7:10-9.

7. Auxiliary power for surface water treatment plants shall be provided in accordance with N.J.A.C. 7:10-11.6(i).

(e) All filtration treatment plants, treating either surface water or ground water under the direct influence of surface water, shall be equipped as follows:

1. For the continuous monitoring and recording of the disinfectant residual entering the distribution system.

2. For the continuous monitoring and recording of effluent turbidity from each individual filter.

3. Each filter must have the capability to filter to waste at the normal production rate.

7:10-11.9 Standards for the construction of pumping stations

(a) All pumping stations shall be located above-ground for ease of inspection and maintenance. Where an above-ground location is not feasible, the station shall meet the requirements for underground pumping stations at (g) below.

(b) Regulations for pumping station location and protection are as follows:

1. Pumping stations shall not be located within the 100 year flood hazard area. Where a location outside the 100 year flood hazard area is not feasible, the pumping

station shall be protected against flooding. All treated water pumping stations shall have a floor elevation at least one foot above the highest recorded flood elevation.

2. Pumping stations shall be constructed in compliance with N.J.A.C. 7:10-11.6(g).

(c) Wet wells shall be watertight and protected against seepage and contamination. Wet wells shall be covered and provided with downfaced or mushroom type screened vents protected against entry of foreign matter.

(d) Regulations for pumping equipment are as follows:

1. Pumping equipment shall be designed to meet the demand requirements pursuant to N.J.A.C. 7:10-11.6(a).

2. Sufficient pumping units shall be supplied so as to have firm capacity to achieve the maximum design output of the station.

3. Where low pressure may adversely affect customers, a booster pump station shall be designed and controlled to maintain a minimum pressure of twenty pounds per square inch (20 p.s.i.) in the water main from which it draws suction. If chronic low pressure problems exist, the Department will require an automatic switch to activate pumps in low pressure situations.

4. Priming systems shall be constructed to prevent contamination of the water supply.

(e) Each pumping station shall be equipped with check valves, flow meters, isolation valves located before and after the pumping station, pressure gauges, and manual shutoff valves within the station.

(f) Each pumping station with a design capacity greater than or equal to 100,000 gallons per day shall be equipped with a flow totalizing meter.

(g) Each underground pumping station shall have sump and sump pump capacity adequate to handle leakage or a break within the station as follows:

1. A minimum of two sump pumps designed to be activated at different flood levels;

2. An alarm activated 24 hours a day that is triggered when water is six inches above the floor level or when the secondary sump pump activates. In addition, an automatic above-ground power shutoff shall be activated when the water reaches the base of the pumps; and

3. Isolation valves which automatically close either when there is a power failure or when the secondary sump pump is activated.

7:10-11.10 Permit requirements and standards for the construction of distribution systems

(a) A supplier of water may apply for a master permit, including all proposed routine water main extensions and/or replacements, transmission mains and interconnections, covering a set maximum number of service connections for a period not exceeding three years. At the time of application for such master permit, the supplier of water shall submit specifications and an engineer's report demonstrating that the water system can meet the requirements of this subchapter, as well as a system distribution map that differentiates between existing and proposed water mains.

1. Each master permit shall be renewed annually.

2. A master permit is available only to suppliers of water in those municipalities that have approved utility development plans in conformance with municipal master plans and zoning ordinances.

(b) For any distribution system improvement such as water main extension and/or replacement, transmission main or interconnection not covered by a master permit issued pursuant to (a) above, the supplier of water shall:

1. For any water main extension which includes new residential service to more than 15 realty improvements but less than 50 new service connections, or generates a new non-residential average demand of more than 6,000 gallons per day determined pursuant to Table 1 at N.J.A.C. 7:10-12.6(b), submit a completed permit Standard Application Form pursuant to N.J.A.C. 7:10-11.5(b), the Simplified Water Main Certification Form, available from the Bureau of Safe Drinking Water, P.O. Box 426, Trenton, New Jersey 08625, the permit application review fee specified at N.J.A.C. 7:10-15.3(d)2, and a plan showing the location of existing and proposed water mains. The Simplified Water Main Certification Form includes the following information:

i. The name and address of the supplier of water
ii. The diameter and length of water mains;
iii. The anticipated water demand; and
iv. A certification by the supplier of water that the proposed water main extensions will be constructed in conformance with the requirements of this subchapter.

2. For any water main construction which includes 50 or more new service connections, or is 1500 or more feet in length, or includes an interconnection with another public community water system, submit a water distribution map depicting locations of existing mains and proposed extension(s) of water mains, a complete permit application pursuant to N.J.A.C. 7:10-11.5(b), including the permit application review fee specified at N.J.A.C. 7:10-15.3(d) 3 or 4, as applicable.

3. A permit pursuant to this section is not required for water main extensions other than those specified at (b)1. and 2. above.

(c) The Department shall deny a permit application under this section for any proposed distribution main extension if the source, treatment, transmission or storage capacity does not meet the requirements of N.J.A.C. 7:19-6.7 and N.J.A.C. 7:10-11.6(a), or the public community water system is unable to meet its historical peak daily demand as well as the additional demand anticipated from the proposed expansion.

(d) Regulations for the capacity and size of water mains are as follows:

1. Design capacity of water mains shall be such as to maintain a minimum pressure of 20 pounds per square inch (psi) at street level under all flow conditions.

2. The minimum diameter of all distribution mains shall be six inches for systems with an average demand of less than 1 MGD and eight inches for larger systems. The Department will approve deviations from this minimum requirement if justified by hydraulic analyses submitted by the applicant, taking into consideration future water usage. The Department shall not approve a water distribution main of less than six

inches in diameter if it is intended to supply a fire hydrant(s) or if there is a reasonable possibility that it will be extended to serve additional properties or areas.

(e) General design requirements for water mains are as follows:

1. So far as is practicable, distribution mains shall be laid in a loop system to eliminate dead ends. The distribution system shall be equipped with hydrants or other flushing devices to permit water main flushing. Each dead end shall be provided with an adequately protected fire hydrant, flushing hydrant, or a valved outlet to which a temporary pipe may be affixed, to discharge flushed water above-ground. Flushing devices should be capable of providing a minimum pipe flushing velocity of 2.5 feet per second.

2. Water mains shall be designed to provide a maximum flow velocity (excluding fire service flow) of five feet per second for mains up to 16 inches in diameter and 10 feet per second for mains greater than 16 inches in diameter.

3. All distribution mains shall be covered with a minimum of 3.5 feet of earth or other suitable cover to prevent freezing.

4. Each newly constructed water main shall be disinfected before being placed in service in accordance with American Water Works Association Standard AWWA C651-86, as amended and supplemented, incorporated herein by reference and available as provided at N.J.A.C. 7:10-11.6(d).

5. All water mains and sanitary or industrial sewer lines shall be separated by a horizontal distance of 10 feet. If such lateral separation is not possible, the water and sewer lines shall be in separate trenches (step trenches are prohibited) with the top of the sewer line at least 18 inches below the bottom of the water main or with such other separation expressly approved by the Department. At crossings of sewer lines and water mains, the top of the sewer lines shall be at least 18 inches below the bottom of the water main (sewer service laterals are not subject to this requirement). If such vertical separation is not possible, the sewer line shall be of watertight construction (i.e., ductile iron or reinforced concrete pipe), with watertight joints that are a minimum of 10 feet from the water main.

6. Water distribution mains shall be equipped with sufficient numbers of valves to minimize service interruption and safety hazards during repairs. The appropriate number of valves at each water main intersection shall be determined using an n-1 formula (for example, at a four-way intersection, a minimum of 3 valves is required). Straight pipe runs such as transmission mains shall be equipped with valves at intervals of a minimum of 2500 feet. The Department will approve deviations from the minimum valve interval for larger transmission lines if justification therefor is provided, but in no case shall the interval between valves exceed one mile.

7. Water services and plumbing shall conform to the requirements of the Plumbing Subcode of the New Jersey State Uniform Construction Code, N.J.A.C. 5:23-3.15.

(f) Where water mains must be constructed to cross surface waters, the supplier of water shall discuss the appropriate design with the Department at a preapplication conference before submitting an application for a permit under this section.

(g) Regulations for distribution system maintenance are as follows:

1. Chambers or pits containing gate valves, air-relief valves, blowoffs, meters, or similar appurtenances to a distribution system shall be drained to ensure access and their functioning and shall not be directly connected to a storm sewer or sanitary sewer. Drainage may be discharged above ground or to dry wells.

2. Blowoffs, air-relief valves, flushing devices, and hydrant drains shall not be directly connected to a storm sewer or sanitary sewer.

3. The open end of an automatic air-relief pipe shall be extended from the manhole or enclosing chamber to a point at least one foot above the surrounding ground, and shall be provided with a downfacing elbow or mushroom cap and an insect screen. Manual air-relief pipes shall extend only to the highest point in the enclosing chamber, unless a high water table necessitates that the air relief pipes extend above ground.

4. Except as provided at N.J.A.C. 7:10-10, physical connections between a public community water system distribution system and any unapproved water supply are prohibited.

7:10-11.11 Distribution storage requirements

(a) Suppliers of water shall provide finished water storage as required pursuant to N.J.A.C. 7:19-6.7 and as follows:

1. Each public community water system shall provide storage for finished water as an integral part of its distribution system whether the water system has its own source(s) of water or buys water from another public community water system.

2. The location, size, type and elevation of the equalization reservoir, standpipe, or elevated storage tank shall be such as to ensure that the distribution system meets the pressure requirements established at N.J.A.C. 7:10-11.10(d).

3. Each clear well, whether designed separately or as part of a filter structure, shall meet the requirements for below-grade reservoirs set forth at(e) below.

4. Finished water shall not be stored in a compartment adjacent to an untreated water storage compartment if a single wall separates the two compartments.

5. Each storage reservoir and tank shall be equipped with an overflow and a low level warning alarm.

6. There shall be equipment to determine the water level in each distribution storage tank. Each storage tank with a capacity greater than 100,000 gallons shall be equipped with a level recorder.

7. Water storage facilities shall be designed so as to permit dewatering (for example, by a yard hydrant) for cleaning and maintenance without interrupting service. Direct connection to a storm sewer line or a sanitary sewer line is prohibited.

(b) Each equalization reservoir, standpipe and elevated storage tank shall have adequate safety devices and shall be protected from unauthorized access and vandalism as required pursuant to N.J.A.C. 7:10-11.6(g).

(c) Regulations for distribution storage roofs and covers are as follows:

1. Each reservoir, standpipe or elevated tank shall be provided with an impermeable and durable roof or cover.

2. The roof of the structure shall be well-drained but drainspout pipes shall not enter the reservoir. Parapets or similar structures that tend to hold water or snow on the roof, are prohibited.

3. Each concrete reservoir with an earthen cover shall have a roof that is sloped to facilitate drainage. Such a reservoir should be equipped with an impermeable membrane roof cover.

4. Each access manhole and scuttle located in the roof of an elevated tank or in the roof of a ground-level reservoir shall be framed at least six inches above the surface of the roof. Each manhole located in a below ground-level reservoir shall be elevated at least 36 inches above the ground. Each access manhole and scuttle shall be equipped with a solid cover securely fastened against unauthorized entry.

5. Each vent shall be equipped with a downfacing elbow or mushroom cover and an insect screen. Each vent on a ground-level reservoir or a below ground-level reservoir shall terminate not less than 24 inches above the finished grade, whether roof or soil.

(d) Regulations for inside paint and protective coatings are as follows:

1. Any protective coating in contact with treated water shall be inert and nontoxic and shall meet the requirements of N.J.A.C. 7:10-8.

2. Interior paint shall be properly dried and cured so that, after curing, the coating does not transfer any volatile or toxic substance to the water. Prior to placing a storage facility in service, the water shall be tested for volatile organic compounds to ensure compliance with MCLs at N.J.A.C. 7:10-5.

(e) Regulations for below-grade reservoirs are as follows:

1. Any reservoir constructed partly or entirely below grade shall be designed, located, and graded so as to be secure against uplift and entry of underground or surface contamination.

2. Where a below-grade reservoir is located within 100 feet of sanitary sewer line, the water supplier shall ensure that such sewer line is constructed of steel, reinforced concrete, cast or ductile iron or other suitable material and shall test such sewer line for water tightness upon installation of the below-grade reservoir.

3. Below-grade reservoirs are prohibited within 100 feet of a sanitary sewer manhole or lateral.

4. If a below-grade reservoir is located in an area with a high water table, the reservoir shall be equipped with a double containment system that includes leak detection equipment or a suitable alternative approved by the Department so as to prevent untreated ground water from entering the reservoir. A pre-application meeting with the Department is recommended if an alternative design is proposed.

(f) Regulations for the construction of above-grade reservoirs, standpipes, and elevated tanks are as follows:

1. Each above-grade reservoir, standpipe, and elevated tank shall be equipped with such inside or outside ladders as may be necessary to facilitate inspection.

2. Each riser pipe shall be protected from freezing.

3. Each overflow of an above-grade reservoir, elevated tank or standpipe shall consist of a downpipe that terminates no less than six inches nor more than 36 inches above the ground, and shall be located so as to prevent erosion of the foundation. A stub overflow is prohibited.

(g) Regulations for hydropneumatic tanks are as follows:

1. Hydropneumatic tanks shall be excluded in calculating the system storage capacity of a public community water system.

2. All hydropneumatic tanks shall be located above ground and completely enclosed within a building. The Department will approve deviations from this requirement for larger installations if it is not feasible to enclose a larger tank in a building.

3. The total capacity of the wells and pumps shall be at least 10 times the average daily demand in water systems using only hydropneumatic tanks for storage. The gross volume of the hydropneumatic tank, in gallons, shall be at least 10 times the capacity of the largest well and/or pumps, rated in gallons per minute.

4. Each hydropneumatic tank shall be equipped with a pressure relief valve and a vacuum relief valve.

(h) All storage reservoirs, tanks, and appurtenances shall be disinfected in accordance with N.J.A.C. 7:10-11.6(d).

7:10-11.12 Chemical handling and chemical feed systems

(a) General requirements for chemical handling and chemical feed systems are as follows:

1. A minimum of two chemical feeders are required for a water treatment plant that treats more than one source of water supply or for a water treatment plant whose capacity exceeds 20 percent of the public community water system capacity. The feeders shall have sufficient capacity to provide all of the chemical required to treat the water through the treatment plant.

2. Variation in the feed rate shall not exceed five percent of the intended application rate.

3. Either flow pacing or residual pacing shall be provided to ensure accurate chemical application rate.

4. Each chemical feeder shall be equipped with a device that accurately measures the amount of chemical feed.

5. An antisiphon device shall be installed on the chemical solution feed line. The device shall include an antisiphon valve
to provide a vacuum break on the chemical solution feed line. The chemical feed line shall be looped to a level higher than the highest elevation of chemical storage tank so as to prevent back siphonage or drainage into the treated water supply.

6. Each chemical feeder shall be electrically interconnected with the well or service pump.

7. Each treatment plant shall have a minimum of 30 day storage capacity for chemicals based upon the expected monthly use of chemicals by the treatment plant. If chemicals will be delivered to the treatment plant in bulk deliveries, the tank capacity shall be a minimum of 120 percent of the bulk delivery volume.

(b) Regulations for chemical solution tanks are as follows:

1. Each chemical solution tank shall be provided with adequate agitation to keep the strength of the solution uniform.

2. Makeup water shall be introduced into the chemical solution tank through an air break or other approved method, to prevent back siphonage.

3. The capacity of each chemical solution day tank shall be sufficient to provide at least eight hours worth of chemical solution storage at normal operating feed rates.

4. Direct connection between chemical solution tank drains and sanitary sewer lines are prohibited.

5. Waste liquids or sludge from chemical solution tanks shall be disposed of in accordance with applicable State and Federal law and regulations.

(c) Dry feeders shall be either of the volumetric or gravimetric type, and shall comply with the following requirements:

1. Each dry feeder shall be completely enclosed and equipped with adequate means of dust control.

2. Each solution pot shall be adequate to ensure effective solution or suspension of the chemical.

3. Makeup water shall be introduced into solution pots through an air break or other approved method, to prevent back siphonage.

(d) Chemical feed lines shall be equipped with clean-out connections, shall be easily accessible for repair or cleaning, shall be protected against damage and freezing, shall be corrosion resistant, shall be as short as possible, and shall be provided with adequate slope to permit draining.

(e) Safety regulations are as follows:

1. Equipment for the storage and handling of chemicals that are hazardous to the health of employees shall include the provision of rubber or neoprene gloves and hand washing facilities. Where dry powdered chemicals are handled, National Institute for Occupational Safety and Health (NIOSH) approved dust respirators shall be provided.

2. Safety shower(s) shall be provided for employees where hazardous chemicals are handled. Such showers shall be in close proximity to the handling location.

3. A manufacturer's material safety data sheet for each chemical used on site shall be posted in a conspicuous location.

4. When a hazardous or explosive chemical, such as sodium chlorite or powdered activated carbon, is used, it shall be safely stored and handled. For example, where powdered activated carbon is used, the public community water system shall provide adequate forced draft ventilation of the feed equipment, a fireproof building or compartment for storage, and explosion-proof electrical outlets, lights and motors in the feeder room.

7:10-11.13 Pretreatment requirements

(a) General regulations for pretreatment are as follows:

1. The number of pretreatment units shall be such that when any single unit is out of service the remaining pretreatment unit(s) comply with the detention time and surface loading rate requirements of this section for at least the average daily demand on the treatment plant. A minimum of two pretreatment units is required for surface water treatment.

2. Sufficient data shall be included in the engineer's report submitted pursuant to N.J.A.C. 7:10-11.5 to establish the type and application rate of the chemicals required for pretreatment.

3. Each pretreatment basin shall be equipped with a drain or drains to facilitate dewatering.

4. Adequate provision shall be made for the removal of sludge. Where sludge is expected to be voluminous, consideration should be given to mechanical methods of removal.

5. Water treatment sludge shall be disposed of in accordance with applicable State and Federal law and regulations.

(b) Pretreatment chemicals shall be applied to water where there is sufficient agitation to ensure rapid and uniform dispersion of each chemical throughout the water, such as at pump suctions, rapid mix basins or static mixers.

(c) Regulations for flocculation are as follows:

1. Flocculation is required for all surface waters.

2. Flow-through velocities shall not be less than 0.5 feet per minute or greater than 1.5 feet per minute, with a detention time for floc formation of not less than 30 minutes.

3. Flocculation shall be accomplished by agitation under mixing conditions. Agitators shall be driven by variable speed drives, with the peripheral speed of paddles ranging from 0.5 to 3.0 feet per second.

4. The flocculation unit shall have compartments and inlet and outlet facilities to minimize short-circuiting and to permit floc to pass from the flocculator to the subsequent treatment unit without impairment. The velocity of flocculated water through pipes or conduits to settling basins shall not be less than 0.5 or greater than 1.5 feet per second.

5. Flocculation (or reaction) time for solids contact units shall be calculated on the basis of the input flow and the volume occupied by the agitated mixture of slurry with the water being treated. For horizontal flow units, the calculation shall be based on the volume of the flocculation or reaction chamber.

(d) Regulations for sedimentation are as follows:

1. Pretreatment by sedimentation is required for all surface waters, unless pilot test data submitted pursuant to N.J.A.C. 7:10-11.8(d)1 demonstrate that sedimentation pretreatment is not necessary.

2. The minimum depth of the sedimentation basin shall be 10 feet, with ample allowance for sludge accumulation or sludge removal equipment and a depth of water flow of at least six feet.

3. Inlet and outlet facilities shall be designed so as to minimize short-circuiting. Submerged inlet ports shall be located so as to avoid creating a disturbance of the settled floc.

4. The maximum surface loading rates (gallons per minute per square foot) are as follows:

	Flocculation or Iron or Manganese Removal	Lime Softening
Ground Water	0.5	1.0
Surface Water	0.375	0.75

5. For around-end baffling in a horizontal plane, the maximum surface loading rate pursuant to (d)4 above shall be reduced by 50 percent.

6. For horizontal units, the minimum detention time shall be four hours for surface water and two hours for lime softening treatment plants.

7. The water velocity through settling basins shall not exceed 0.5 feet per second.

8. The Department may approve the use of tube or plate settlers if justification is provided for reduced detention times. In such cases, a pilot plant study shall be implemented to demonstrate satisfactory operation.

i. Sufficient freeboard must be provided above the top of the settlers to prevent freezing of the units in outdoor installations. The construction of outdoor units is discouraged.

ii. The maximum surface loading rate shall not exceed two gallons per minute per square foot of horizontal tube settler area.

9. Outlet weir loadings shall not exceed 20 gallons per minute per foot of length of settled water. When orifices are used rather than weirs, their size, number and arrangement shall be such as to produce loadings equivalent to the requirements for weirs. Weirs or orifices shall be arranged to produce uniform flow rates over the area of the sedimentation tank.

(e) Regulations for solids-contact units are as follows:

1. Solids-contact units are acceptable for flocculation, lime softening, iron or manganese removal, and for settling.

2. Solids-contact units shall be installed and initially operated under the supervision of the manufacturer's representative.

3. Each solids-contact unit shall facilitate satisfactory flocculation of the water before it enters the settling area.

4. Surface loading rates for solids-contact units shall be calculated on the basis of the input flow and the horizontal area of flow in the clarification zone at a level five feet below the level of the discharge weirs or orifices. The maximum surface loading rates (gallons per minute per square foot) are as follows:

	Flocculation or Iron or Manganese Removal	Lime Softening
Ground Water	1.0	2.0
Surface Water	0.75	1.5

5. Each solids-contact unit shall be equipped with sampling taps to facilitate collection of water samples from various locations within the unit to ensure its efficiency.

6. Outlet weir loadings shall not exceed 20 gallons per minute per foot of length of softened water, or 10 gallons per minute per foot of length of flocculated water. Where orifices are used rather than weirs, their size, number and arrangement shall be such as to produce loadings equivalent to the requirements for weirs. Weirs or orifices shall be arranged to produce uniform vertical flow rates over the area of the solids-contact unit.

7. Each solids-contact unit shall be equipped for effective concentration of sludge and to facilitate sludge draw-off and disposal.

8. Sludge piping shall be arranged so as to facilitate operation and cleaning. Piping shall not be less than three (3) inches in diameter and shall allow for flushing with clear water.

9. Sludge valves shall be located outside of the solids-contact tank.

10. Each solids-contact unit shall be equipped to allow manual override of any pre-set automatic intermittent withdrawal of sludge.

7:10-11.14 Filtration

(a) General requirements for filtration are as follows:

1. Each filter unit shall be provided with equipment which facilitates cleaning, and placing or replacing the filter medium.

2. Each filter unit shall be provided with equipment for backwash (except for slow sand filtration).

3. Surface water treatment facilities shall be equipped with a continuous or sequencing turbidity monitoring device for each filter unit and a continuous turbidity monitoring device for the plant effluent. The sequencing devices shall automatically analyze and record each filter unit effluent turbidity at least once every hour.

(b) Total filtration capacity shall be such that, with one unit out of service, the maximum filtration rate of any of the remaining units will not exceed the requirements established at N.J.A.C. 7:10- 11.14(c).

(c) Filter unit design requirements are as follows:

1. Filter units shall not contain any contamination hazards, single walls between treated and untreated water, or plumbing cross connections.

2. Pressure filtration rates shall not exceed a loading rate of three gallons per minute per square foot unless approved by the Department.

3. Pressure filter units shall not be used for surface water treatment.

4. The filtration rate for rapid sand and mixed media shall not exceed five gallons per minute per square foot.

5. Size requirements for filter media are as follows:

i. For rounded particles, maximum effective size shall be 0.55 mm.

ii. For angular particles, maximum effective size shall be 0.45 mm.

iii. The maximum uniformity coefficient shall be 1.6.

iv. The minimum thickness of filter media shall be 24 inches.

v. The maximum head loss through filter medium shall be eight feet of water.

6. Regulating valves shall be provided for the control of filtration rates.

7. When dual media filters with sand and anthracite beds are used, the anthracite particles may be twice the effective size required under (c)5 above. The sand bed shall be a minimum of 12 inches thick.

8. At least 12 inches of graded gravel shall be placed over the underdrains or another filter media support method specifically designed by the filter media manufacturer shall be used.

9. Slow sand filter units may be used if approved by the Department. The Department shall approve the use of slow sand filter units if the applicant demonstrates

the adequacy of such water treatment technology through pilot plant tests on the source of water to be treated.

(d) Granular activated carbon (GAC) may be used as a filter medium provided the filter unit meets the filter design requirements of (c) above, and adequately controls bacterial growth in the filtered water, incorporates backwash equipment, and facilitates replacement of medium when necessary.

(e) Regulations for backwash water are as follows:

1. Backwash water shall be filtered water.

2. The available wash rate shall be a minimum of 15 gallons per minute per square foot and shall provide for a minimum of 30 percent expansion of the filter medium. Supplemental washing facilities such as surface wash or air scour units shall be provided.

3. Reduced pressure zone backflow preventers shall be installed to prevent back siphonage of filter surface wash water.

4. Backwash water shall not be discharged to a sanitary sewer system except in accordance with the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:10-14A, and with written approval from the appropriate sewerage authority. Direct connections between backwash water lines and sanitary or storm sewer lines are prohibited. Discharges shall be made through an above-ground air gap.

7:10-11.15 Miscellaneous treatment processes

(a) Rules for aeration are as follows:

1. The supplier of water shall evaluate each aeration treatment unit for its effectiveness in water treatment and adequate protection of the water.

2. Because of the large variation in aeration treatment unit's effective air to water ratios, the Department does not set minimum standards for the air to water ratio. The Department will review and approve the design of each such treatment unit during its review of a permit application under this subchapter.

3. Any aeration process not subject to filtration for particulate removal must meet the following minimum requirements for protection against dust, insects, and bacteriological contamination:

i. All air entering an induced or forced air aeration unit shall be passed through a corrosion-resistant screen of not less than 24 mesh.

ii. All aerators, except those followed by flocculation, sedimentation and filtration units, shall be constructed so as to prevent contamination by birds, insects, wind-borne debris, rainfall and water draining off the exterior of the aerator.

iii. All forced air aeration units shall be equipped with air filters, including a filter to remove entrained oil when applicable.

(b) Regulations for water softening are as follows:

1. A public community water supply shall not be softened to zero hardness. Where water is softened, it shall be blended with unsoftened water to ensure that the delivered water contains a minimum hardness of 50 mg/l as calcium carbonate ($CaCO_3$) prior to distribution.

2. Where carbon dioxide is used for recarbonation, the minimum detention time shall be 20 minutes. For lime softening, a shorter detention time may be utilized.

3. A rapid filter unit shall be used following any lime softening treatment unit.

4. For ion-exchange softening, the following requirements apply:

i. The ion-exchange process shall not be used to remove iron and manganese.

ii. Pretreatment is required for an ion-exchange process if the iron content of the water exceeds 0.3 mg/l and/or the manganese content exceeds 0.05 mg/l.

iii. The design criteria for ion-exchange softening treatment units are as follows:

(1) The maximum operating exchange capacity shall be 20 to 35 kilograms per cubic foot.

(2) The minimum resin bed depth shall be 36 inches.

(3) The softening flow rate shall be two to six gallons per minute per cubic foot.

(4) The backwash flow rate shall be five to six gallons per minute per cubic foot.

(5) The salt application rate shall be five to 20 pounds per cubic foot.

(6) The brine concentration shall be eight to 16 percent.

(7) The regeneration brine contact time shall be 25 to 45 minutes.

(8) The rinse water flow rate shall be one to five gallons per minute per cubic foot.

(9) The rinse water volume requirement shall be 20 to 40 gallons per cubic foot.

iv. Household-type units in parallel are prohibited.

v. Acceptable hardness levels may be achieved by blending softened and unsoftened water.

vi. Alternate methods of hardness removal shall be used if dissolved solids and/or sodium concentrations in the finished water exceed the limits established in the State secondary drinking water regulations at N.J.A.C. 7:10-7.2.

vii. Sequestration, as a substitute for hardness removal, shall not be used where raw water hardness levels exceed 300 mg/l.

(c) Regulations for the removal of iron and manganese are as follows:

1. All raw water in which iron levels exceed 0.6 mg/l and/or manganese levels exceed 0.1 mg/l shall be treated to remove the iron and/or manganese in excess of the limits in the State secondary drinking water regulations at N.J.A.C. 7:10-7.2.

2. Ground water in which iron and/or manganese levels exceed the limits in the State secondary drinking water regulations but do not exceed the limits specified in 1 above may be treated using a sequestering agent.

3. Pressure filtration rates for iron and/or manganese removal shall not exceed three gallons per minute per square foot.

(d) Regulations for corrosion control are as follows:

1. Corrosion control treatment shall be employed when the water is corrosive to the distribution system or plumbing.

2. When the hardness of the water is less than 50 mg/l as CaCO3, neither caustic soda (sodium hydroxide) nor soda ash (sodium carbonate) alone shall be used to control corrosion unless used in conjunction with a corrosion inhibitor.

3. For smaller installations (less than 100 gallons per minute), calcite filters may be used for corrosion control.

4. Corrosion inhibiting compounds designed to provide a protective film on the walls of distribution mains shall not be used unless approved by the Department. The approval will be based on either pilot plant or water system operational data on the use of the compound submitted by the public community water system.

5. Cathodic protection shall not be used for internal corrosion control in water mains.

(e) Rules for taste and odor control are as follows:

1. Corrective treatment shall be employed to control objectionable tastes and odors in all waters.

2. Aeration, chlorine, chlorine dioxide, copper sulfate, ozone, potassium permanganate, granular activated carbon and powder activated carbon are acceptable for taste and odor control treatment.

3. If copper sulfate or other copper compounds are used to treat water, the residual copper levels in the distribution system shall not exceed 1.3 mg/l.

(f) Rules for fluoridation are as follows:

1. Fluoridation treatment units shall be capable of maintaining a finished water fluoride level between 0.8 and 1.2 mg/l at all points in the distribution system.

2. The following compounds may be used for fluoridation:

i. Sodium fluoride;

ii. Sodium fluorosilicate; or

iii. Fluorosilicic acid;

3. Fluoridation chemicals shall be stored in their original unopened containers unless transferred to corrosion resistant covered storage containers.

4. Fluoridation feed equipment shall comply with applicable provisions of N.J.A.C. 7:10-11.12 and with the following:

i. Solution feed equipment may be used to feed solutions of sodium fluoride or fluorosilicic acid. Use of sodium fluorosilicate slurries is prohibited.

ii. Dry feed equipment may be of volumetric or gravimetric type. Gravimetric feeders shall be mounted on appropriately designed weighing scales. The dilution ratio for the fluoride solution shall be at least 12 gallons of water per pound of sodium fluoride or 60 gallons of water per pound of sodium fluorosilicate.

(1) A detention period of at least five minutes is required for sodium fluoride solution and 15 minutes for sodium fluorosilicate solution.

(2) The solution shall not be directly introduced into any pipe or conduit under negative pressure, and an antisiphon device shall be installed to prevent siphonage of the solution.

iii. Floor surfaces adjacent to feeders shall have a smooth and impervious finish, and shall be sloped to adequate drains to permit hosing of the floor with water.

iv. Waste liquids or sludge from fluoride solution tanks shall be disposed of in accordance with applicable State and Federal law and regulations. Appropriately designed dust control units shall be used in handling dry chemicals. Exhaust air from vacuum conveying equipment shall be filtered and discharged outdoors. Where chemical containers are manually emptied into the treatment unit, an exhaust fan with filter and suitable duct work to provide an air velocity of at least 200 feet per minute at the opening through which the chemical is being emptied shall be used. Such an exhaust fan is not required where containers are emptied in enclosures or through dust-tight connections. Crystalline or granular forms of the chemical may be used to reduce dust.

v. Vapor shall be vented to the outdoors when fluorosilicic acid is handled. The acid shall not be handled in open vessels but shall be pumped through a closed system with an air inlet from the outside.

vi. Equipment for use and handling of fluoridation compounds shall include the provision of rubber or neoprene gloves and, where dry fluoride chemicals are handled, U. S. Bureau of Mines approved dust respirators. Hand washing facilities shall be available.

vii. Fluoridation storage and feed equipment shall be in rooms separate from other treatment units. Rooms in which fluoridation compounds are stored and/or handled shall be secured against the entry of unauthorized persons.

viii. A fluoride residual test kit shall be furnished for the routine testing of water samples for fluoride content.

(g) Rules for packed column aeration for the removal of volatile organic compounds (VOCs) are as follows:

1. The packed column shall be designed to remove VOCs from at least twice the maximum level found in the system water source to below the MCL established in the State primary drinking water regulations at N.J.A.C. 7:10-5. The removal efficiency should not be less than 95 percent.

2. The packed column flooding condition of the packing material shall be avoided. The specific conditions under which hydraulic flooding shall occur, and the means by which such flooding shall be avoided, must be specified in the engineer's report submitted with the application for a permit under this subchapter.

3. Scaling of the packing within a packed column shall be avoided. An evaluation of the impact of air stripping carbon dioxide and other gases in the water on water quality must be provided in the engineer's report submitted with the application for a permit under this subchapter. The evaluation shall describe the effect that aeration of hard waters may have on scaling of the packing.

4. Vapor phase treatment of the air effluent shall be provided when required pursuant to the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq., and N.J.A.C. 7:27.

5. Packing support trays shall be provided.

6. Wall wipers or re-distributors are required at a minimum of ten (10) foot column intervals in order to prevent short-circuiting.

7. The column shall be constructed to facilitate a change in height of the packing and replacement of the packing without major reconstruction.

8. Means shall be provided to drain the column riser pipe.

9. Pre- and post-column water sampling taps are required. Means to facilitate measurement of influent and effluent air quality and intake air quantity shall be provided.

10. The packed column shall be designed to facilitate the periodic adding of chlorine for pre-disinfection or of another oxidant or acid for cleaning the medium.

11. The air intake shall be located so as to avoid recirculation of the gas phase discharge from the top of the facility.

12. Protective screens of a minimum 24 mesh and air particulate filters are required on the air intakes.

13. A moisture barrier (demister) shall be provided.

14. Backup blowers are required where multiple water sources are being treated.

(h) Regulations for granular activated carbon (GAC) for adsorption of organic compounds are as follows:

1. The requirements for filtration at N.J.A.C. 7:10-11.14 shall be met, as applicable.

2. The empty bed contact time shall not be less than 20 minutes.

3. The GAC treatments units shall be capable of being backwashed, even if the GAC is not used as a filtration medium. The minimum available backwash rate shall be 12 gallons per minute per square foot of medium surface area.

4. If GAC is used as a dual function medium (filter and adsorber), the estimated time of breakthrough shall be redetermined to account for the chromatographic effect of frequent backwashing.

5. For GAC contained in pressure vessels, means for releasing excess pressure shall be provided to prevent over pressurization.

6. The influent and effluent lines to the GAC treatment unit shall be equipped with samplings taps. In addition, at least two taps shall be spaced in a vertical line within the GAC bed for monitoring the progress of the mass transfer zone within the GAC treatment unit.

7. Since GAC is easily abraded, transport systems shall be designed to minimize GAC breakup.

8. Virgin GAC shall be used, except that regenerated GAC may be used if such GAC was used previously only in potable water treatment plants and regenerated in facilities used only for potable water treatment plant filter media.

9. The GAC bed shall be a minimum of 48 inches deep.

10. GAC shall not be used as a dual functioning medium (filter and adsorber) when synthetic organic chemicals are regularly present in the raw water and filtration of the water is required.

11. GAC treatment units must be pilot or bench tested to determine GAC life.

12. Each GAC treatment unit shall be provided with isolation valves and a drain.

7:10-11.16 Disinfection of public community water system water supplies

(a) General rules for disinfection are as follows:

1. Disinfection of public community water supplies shall be accomplished with chlorine or chlorine compounds. The Department will approve use of other disinfecting agents if post-chlorination is used to provide an adequate chlorine residual in the finished water.

2. Chlorination shall be the last treatment process in a treatment plant with multiple treatment processes. Pre-chlorination may be practiced if it is applied in conjunction with post-chlorination.

(b) Disinfection equipment requirements are as follows:

1. Gas chlorinators shall be of the solution feed type and hypochlorite feeders shall be of the positive displacement type.

2. If chlorine dioxide is used as the disinfectant, sodium chlorite shall be injected into the discharge line of a solution feed chlorinator, with subsequent formation of the chlorine dioxide in the reaction chamber.

3. If ammonia is added in conjunction with chlorine for chloramine disinfection, the ammonia treatment unit shall be separate from the chlorine treatment unit so that the ammonia and chlorine gases do not mix.

4. Superchlorination followed by dechlorination may be used, provided the minimum chlorine contact periods set forth at (e) below are employed.

(c) Post-chlorination treatment units shall have the capacity to produce free chlorine residuals in accordance with (e) below, even if the maximum water flow rates coincide with the anticipated maximum chlorine demand.

(d) The chlorination treatment system shall have sufficient capacity to disinfect all water within the treatment plant if one treatment unit is out of service.

(e) Regulations for chlorine contact period and chlorine residual are as follows:

1. To afford adequate protection for both surface water and ground water, chlorination treatment systems shall be designed to ensure the following minimum chlorine contact periods before the water enters the public community water system distribution system. The engineer's report submitted with the application for a permit under this subchapter shall demonstrate that these requirements are met.

i. Ground water shall be treated for a minimum chlorine contact period of at least five minutes to produce the minimum free chlorine residual level required pursuant to 3 below or at least 30 minutes to produce the minimum combined chlorine residual level required pursuant to 3. below.

ii. Surface water or ground water under the direct influence of surface water shall be treated for a minimum chlorine contact period of 30 minutes to produce the minimum free chlorine residual level required pursuant to 3 below.

2. A post-chlorination treatment with a minimum of five (5) minutes chlorine contact time shall be employed by all public community water systems.

3. Chlorination treatment units shall be designed to produce the following chlorine residuals at the specified pH values.

Required Chlorine Residuals at Specified pH Values

pH Value	Available Chlorine Residual	
	Free	Combined
Up to 7.0	0.2 ppm	1.0 ppm
7.0 to 8.0	0.3 ppm	1.5 ppm
8.0 to 9.0	0.4 ppm	2.0 ppm

(f) Regulations for gas chlorinators are as follows:

1. Gas chlorinating devices shall be located in above-grade separate rooms with an outside entrance only and shall have proper ventilation including an exhaust fan near floor level with an outside switch. The doors of such rooms shall open outward and shall be provided with panic type hardware (that is, a push bar for opening the door) on the inside of the door. A room heater shall be provided. Chlorine scale and storage rooms shall be equipped in the same manner.

2. An automatic chlorine leak alarm, or observation window to facilitate visual inspection without opening the door of the chlorination room, shall be provided.

3. Gas chlorinating devices shall be equipped with a minimum of two chlorine cylinders interconnected by a manifold and valved to permit rapid changeover when the in-use cylinder becomes exhausted. An automatic switch over valve shall be used in water treatment plants at which an operator is not present 24 hours per day.

4. Scales shall be provided for determining the changes in weight of chlorine cylinders.

5. A sufficient supply of water shall be available for operating the chlorinator and shall be adequately protected against backsiphonage.

6. The rotameter used in a gas chlorinator shall be appropriately sized to prevent an abnormally high chlorine application rate in the event that the rotometer is accidentally misadjusted to apply chlorine at a rate higher than intended.

7. Automatic chlorinators with chlorine residual recorders and alarm systems to indicate chlorinator failure shall be installed at all surface water treatment plants and at other types of water treatment plants if the source water does not meet the microbiological standards specified in the State primary drinking water regulations, N.J.A.C. 7:10-5.

8. A gas mask, preferably with air pack or air hose to the exterior, shall be stored in a readily accessible location outside the chlorine room or other appropriate location and maintained in good operating condition in accordance with the manufacturer's specifications.

(g) Regulations for hypochlorinators are as follows:

1. The room in which a hypochlorinator is housed shall be heated.

2. Hypochlorinators shall meet the requirements of N.J.A.C. 7:10-11.12.

3. A solution tank with minimum storage capacity of 36 hours shall be used, and shall be of durable material resistant to fracture and inert to reaction with the hypochlorite solution.

(h) Regulations for auxiliary equipment are as follows:

1. A comparator, suitable for determining chlorine residuals by the D.P.D. method in accordance with Part 4500CL-G of Standard Methods for the Examination of Water and Wastewater, 17th Edition, as amended and supplemented incorporated herein by reference, shall be used. Supplies of the necessary reagents shall be adequate and available. A copy of the Standard Methods is available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.

2. Where gas chlorination is used, an ammonia solution shall be available for testing for chlorine leaks.

(i) Regulations for ozonators are as follows:

1. Ozonation may be used for primary disinfection but not as a substitute for post-chlorination.

2. Equipment used for ozonation shall be durable and corrosion resistant.

(j) Regulations for chlorine dioxide generators are as follows:

1. The chlorine dioxide maximum feed rate shall be 1.5 mg/l.

2. Each chlorine dioxide generator shall be at least 95 percent efficient in producing chlorine dioxide and the production of by-products (e.g., chlorates, chlorites) shall not exceed five percent.

3. A comparator, suitable for determining chlorine dioxide residuals by the D.P.D. method in accordance with Part 4500-C1O2 D. of the Standard Methods for the Examination of Water and Wastewater, 17th Edition, as amended and supplemented incorporated herein by reference, shall be used. Supplies of the necessary reagents shall be adequate and available. A copy of the standards may be obtained as provided at (h)1 above.

4. A test kit, using amperometric titration or an approved equivalent, shall be used to monitor chlorine dioxide from the generator product stream.

(k) Disinfection equipment, contact tanks and conduits shall be designed to provide for the minimum disinfectant contact periods established under the National Regulations, 40 CFR 141.70.

7:10-11.17 Requests for adjudicatory hearings

(a) An applicant for a permit under this subchapter or any person, subject to the limitation on third party appeal rights set forth in P.L. 1993, c.359 (N.J.S.A. 52:4B-3.1 through 3.3), who believes himself or herself to be aggrieved with respect to any decision made by the Department regarding such permit application submitted pursuant to this subchapter, may contest the decision and request an adjudicatory hearing pursuant to the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., and the Uniform Administrative Procedure Rules, N.J.A.C. 1:1, if the Department:

1. Denies a permit application, or any part thereof;

2. Revokes, withdraws or modifies a previously issued permit approval; or

3. Issues a permit with conditions that the applicant considers unreasonable.

(b) Requests for an adjudicatory hearing shall be in writing and submitted to:

Office of Legal Affairs
Attention: Adjudicatory Hearing Requests
Department of Environmental Protection
PO Box 402
Trenton, New Jersey 08625-0402

(c) A request for an adjudicatory hearing must be received by the Department within 20 calendar days after the date upon which the notice of decision on the permit application was received by the applicant.

(d) A request for an adjudicatory hearing shall be submitted in writing to the Department and shall contain:

1. The name, address and telephone number of the person making the request;

2. A statement of the legal authority and jurisdiction under which the request for a hearing is made;

3. A brief and clear statement of specific facts describing the Department decision for which a hearing is requested; and

4. A statement of all facts alleged to be at issue and their relevance to the Department decision for which a hearing is requested. Any legal issues associated with the alleged facts at issue must also be included.

(e) If the Department does not receive the hearing request within 20 days after receipt by the applicant of the notice of decision on the permit application, the Department shall deny the hearing request.

(f) If the applicant or any person requesting a hearing pursuant to (a) above fails to include all the information required by (d) above, the Department may deny the hearing request.

(g) The Department shall determine whether a request for an adjudicatory hearing should be granted. In making such determination, the Department shall evaluate the request to determine whether a contested case exists and whether there are issues of fact which, if assumed to be true, might change the Department's decision. Where only issues of law are raised by the request for a hearing, the request will be denied. Denial by the Department of a request for an adjudicatory hearing shall constitute the final decision of the Department for the purposes of judicial appeal.

(h) The adjudicatory hearing, if granted, shall be held before an administrative law judge and in accordance with the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., and the rules and regulations promulgated thereto.

SUBCHAPTER 12. STANDARDS FOR THE CONSTRUCTION OF PUBLIC NONCOMMUNITY WATER SYSTEMS AND NONPUBLIC WATER SYSTEMS

7:10-12.1 Authority and scope

This subchapter establishes the certification requirements and standards for the construction of new, altered, or replacement nonpublic water systems and public noncommunity water systems pursuant to the State Act; N.J.S.A. 58:11-23 et seq., the Realty Improvement Sewerage and Facilities Act; and 58:4A-4.1 et seq., commonly known as the Subsurface and Percolating Waters Act.

7:10-12.2 Penalties

Violation of any provision of this subchapter may subject the owner of a public noncommunity water system or nonpublic water system to an enforcement action and penalty in accordance with the State Act and N.J.A.C. 7:10-3.

7:10-12.3 Additional definitions

In addition to the words and terms defined at N.J.A.C. 7:10-1.3, the following words and terms are defined for the purposes of this subchapter:

"Adequate protection" means construction methods which ensure that the water that reaches consumers complies continuously with the physical, chemical, and bacteriological requirements of the State Primary Drinking Water Regulations at N.J.A.C. 7:10-5. The term "adequately protected" shall be construed accordingly.

"Alter" means to replace any portion of an existing water system. The terms "alteration" and "altered" shall be construed accordingly.

"Annular space" means the space between the well casing and/or well screen and the wall of the borehole or, in the case of a multiple cased well, all of the spaces between casings and all of the space between the outer casing and the wall of the borehole.

"Approval" means written authorization from the Department or the administrative authority to an applicant for the construction of a proposed new, altered, or replacement water system pursuant to the requirements of this subchapter.

"Artesian well" means a well in which water is derived from below a confining layer and in which the static water level rises above the aquifer.

"Aquifer" means any subsurface water-saturated zone which is significantly permeable so that it may yield sufficient quantities of water from wells or springs in order to serve as a practical source of potable water supply.

"Borehole" means the hole made by driving, jetting, coring, drilling, augering or other means into the ground for the purpose of constructing a well.

"Building sewer line" means the pipe extending from the outer wall of a building to a septic tank or approved place of disposal including a public sewer, and the lines to all parts of the subsurface sewage disposal system, except those classified as distribution lines.

"Casing" means a pipe or tubing installed into a borehole during or after drilling to support the sides of the hole and prevent caving or the entrance of water, gas or other fluid into the hole.

"Certification" means the written statement issued by the administrative authority or the Department pursuant to N.J.A.C. 7:10-12.39 through 12.42 that a new, altered, or replacement water system complies with the requirements of the Realty Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-23 et seq.), the State Act and this subchapter.

"Cesspool" means a covered pit with open-jointed lining into which untreated sewage is discharged, the liquid portion of which is disposed of by leaching into the surrounding soil, the solids or sludge being retained within the pit.

"Cistern" means a tank for the collection of rain water draining from a roof or roofs, which water is intended to be used for potable purposes.

"Confining layer" means a geologic formation which separates aquifers and which consists of material, such as clay or unfractured rock, that does not permit perceptible vertical transmission of water to other aquifers.

"Consolidated formation" means a geologic formation in which the sands, gravels, clays or other similar materials have been lithified. Such a formation will commonly remain stable around an open borehole without caving.

"Construct" means to build, assemble or install a new or replacement water system or to enlarge or alter an existing water system. The term "construction" shall be construed accordingly.

"Contamination" means sewage, industrial wastes, organisms of the coliform group, water-borne pathogens, or harmful or objectionable material in potable water. The term "contaminated" shall be construed accordingly.

"Decommissioning" means the permanent closure or sealing of a well in accordance with the procedures set forth in N.J.A.C. 7:9.

"Disposal bed" means an individual subsurface sewage disposal system component consisting of a closed excavation made within soil or fill material to contain filter material in which two or more distribution laterals have been placed for the disposal of septic tank effluent.

"Disposal field" means a disposal bed or a group of one or more disposal trenches. The perimeter of the disposal field corresponds to the perimeter of the disposal bed, or a line circumscribing the outermost edges of the outermost disposal trenches and including the area between the disposal trenches.

"Disposal trench" means an individual subsurface sewage disposal system component of a covered excavation made within soil or fill material to contain filter material in which a single distribution lateral has been placed for the disposal of septic tank effluent.

"Distribution box" means a watertight structure which receives sanitary sewage effluent from a septic tank and distributes such sewage effluent in equal portions to two or more pipelines leading to the disposal field.

"Distribution lateral" means a perforated pipe or one of several perforated pipes used to carry and distribute septic tank effluent throughout the disposal field. A distribution lateral is also known as a distribution line.

"Distribution main" means a pipe for the transmission or conveyance of potable water to more than one realty improvement.

"Driving" means the pounding of the well casing into an undersized hole.

"Dry well" means a covered pit with open-jointed lining through which drainage from roofs, basement floors or area-ways may seep or leach into the surrounding soil.

"Dug well" means a water table well that is excavated by means of picks, shovels, or similar hand-tools.

"Finished water" means potable water which does not require treatment in order to meet the requirements of the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7.

"Grout" means a material approved by the Department for use in sealing the annular space of a well during construction, or for sealing a well during decommissioning.

"Immediate on-site supervision" means the presence of a person possessing a New Jersey well driller's license of the proper class to provide direct and constant oversight of the work and performance of any person(s) engaging in or assisting with the operation of a well drilling machine during the construction of a well.

"Individual subsurface sewage disposal system" means a system for the disposal of sanitary sewage into the ground which is designed and constructed to treat sanitary

sewage in a manner that will retain most of the settleable solids in a septic tank and discharge the liquid effluent to a disposal field.

"Industrial waste" means solid or liquid wastes resulting from processes employed in industrial establishments or in any commercial establishment engaged in processes which use or generate any of the pollutants or any substance containing any of the pollutants regulated under section 307(a), (b), or (c) of the Federal Clean Water Act of 1977, 33 U.S.C. 1251 et seq., and any amendments thereto, and the regulations promulgated pursuant thereto.

"Journeyman well driller" means a well driller possessing a New Jersey journeyman well driller's license who has at least three years of experience under the supervision of a New Jersey licensed master or journeyman well driller in the trade, business, or calling of well drilling, with concentration in the practical construction of wells and in the installation and repair of well pumping equipment and appurtenances thereto, or who satisfies equivalent experience and other requirements as prescribed by the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

"License of the proper class" or "license" means the document issued to a person pursuant to N.J.S.A. 58:4A-4.1 et seq. authorizing such person to engage and perform work in the trade, business, or calling of well drilling, or the installation of well pumping equipment and appurtenances thereto, or the decommissioning of wells.

"Locate" means to designate the site or place of the sources or other appurtenances of a water supply system. The term "location" shall be construed accordingly.

"Maintenance casing" means an inner casing in a well with a screen attached to it which can be removed in order to replace the screen.

"Major pollutant source" means any wastewater treatment plant discharge, any documented ground water contamination, any chemical or fuel storage facility with capacity greater than 2000 gallons, any military facility, any industrial treatment lagoon, any automotive service station, any landfill (open, closed, or inactive), any industrial facility (including dry cleaning facilities), any septic system, any cemetery, any salt storage facility, any highway maintenance yard, any truck and/or bus maintenance yard, any underground fuel and chemical storage tank with a capacity of 2000 gallons or more, any livestock operation, any body of surface water containing salt or brackish water, any quarrying and/or mining facility, any asphalt and concrete manufacturing facility, and any open dump or junkyard.

"Master well driller" means a well driller possessing a New Jersey master well driller's license who has at least five years experience in the trade, business, or calling of well drilling, including at least two years of experience as a licensed journeyman well driller in New Jersey, skilled in the planning, superintending, and practical construction of wells, and the installation and repair of well pumping equipment and appurtenances thereto, or who satisfies equivalent experience and other requirements as prescribed by the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

"Minor pollutant source" means any liquid chemical or fuel storage tank with capacity less than 2000 gallons, any stormwater detention or retention basin, any sanitary sewer line, any sanitary sewer manhole, any sanitary sewer pump station, any septic tank or leaching field, any sewage treatment facility, any active farm, and any facility to which the Department has issued a discharge permit pursuant to N.J.A.C. 7:14A.

"Oversized borehole" means a borehole with a diameter at least four inches greater than the inside diameter of the well casing to be installed for the emplacement of a well.

"Pitless well adapter" means a manufactured device designed for attachment to one or more openings through a well casing, and constructed so as to prevent the entry of contamination into the well or potable water, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide access to water system components within the well.

"Pitless well unit" means a preassembled device which extends the upper end of a well casing to above grade, provided with a pitless well cap, and constructed so as to prevent the entry of contamination into the well or potable water, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide access to the well and to the water system components within the well.

"Pitless well cap" means a gasketed, watertight, sanitary device that covers and encloses the upper termination of a pitless well unit or the well casing, and is provided with watertight connections for electrical power lines and well vent.

"Point of entry treatment device" means a device by which drinking water is treated at the point of entry into a building for the purpose of reducing contaminants in the drinking water prior to its entering the distribution system throughout the building.

"Primary contaminant" means any drinking water contaminant regulated pursuant to the State primary drinking water regulations, N.J.A.C. 7:10-5.

"Pump installer" means a person possessing a New Jersey license as a pump installer who has at least one year of experience under the supervision of a New Jersey licensed master or journeyman well driller or a New Jersey licensed pump installer, and is qualified to engage in the installation, removal, alteration, and repair of well pumping equipment and appurtenances thereto in connection with any well, including connecting lines between a well and a storage tank or appurtenances thereto, or who satisfies equivalent experience and other requirements as prescribed by the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

"Realty improvement" means any proposed new residence, commercial or other building (including, but not limited to, condominiums, garden apartments, town houses, mobile homes, stores, office buildings, restaurants, hotels, and so forth), the useful occupancy of which requires the installation or construction of a water system. Each family unit in a proposed multiple family dwelling or each commercial unit in a commercial building shall be construed to be a separate realty improvement.

"Sanitary sewage" means any liquid waste containing animal or vegetable matter in suspension or solution, or the water-carried wastes resulting from the discharge of water closets, laundry tubs, washing machines, sinks, dishwashers or any other source of water-carried waste of human origin or containing putrescible material. This term specifically excludes industrial, hazardous or toxic wastes and materials.

"Sanitary sewer" means a pipe which carries sewage and to which storm, surface and ground water are not intentionally admitted.

"Sanitary well seal" means a manufactured device or approved arrangement which is used to cap a well or to establish or maintain a watertight junction between the well casing and the piping or equipment installed therein.

"Secondary contaminant" means any drinking water contaminant regulated pursuant to the State secondary drinking water regulations, N.J.A.C. 7:10-7.

"Seepage pit" means a covered pit with open-jointed lining material through which septic tank effluent may seep or leach into the surrounding soil.

"Septic tank" means a watertight receptacle which receives the discharge of sanitary sewage from a building sewer or part thereof, and is designed and constructed so as to permit settling of settleable solids from the liquid, partial digestion of the organic matter, and discharge of the liquid portion into a disposal field or seepage pit.

"Service line" means a pipe for the transmission or conveyance of potable water under pressure either from an individual well or from a distribution main to a single realty improvement.

"Single dwelling nonpublic water system" means any nonpublic water system which provides piped potable water to a single or multifamily residential building of four or fewer dwelling units.

"Spring" means a natural surface feature where ground water issues from the rock or soil onto the land or into a body of water.

"Stable water pumping level", when used in this subchapter in reference to a well, means the water level in a well under pumping conditions such that the rate of change in the water level is less than 0.5 feet per hour.

"Subsurface sewage disposal system" means that part of an individual sewage disposal system comprising the disposal field.

"Suction line" means a pipe which conveys water at less than atmospheric pressure from a well to a pump.

"Unconfined or semi-confined aquifer" means an aquifer that is either exposed to atmospheric pressure or bounded by layers of material which do not serve as an effective barrier to water migration.

"Unconsolidated formation" means a geologic formation in which the sands, gravels, clays or other similar materials are loosely arranged. Such a formation will not remain stable around an open borehole.

"Undersized borehole" means a borehole with a diameter no larger than the inside diameter of the well casing to be installed for the emplacement of a well.

"Water bearing formation" means an aquifer as defined in this section.

"Water supply allocation permit" means the document issued by the Department, pursuant to N.J.S.A. 58:1A-1 et seq. and N.J.A.C. 7:19, for the diversion of 100,000 or more gallons per day of ground or surface water for more than 30 days in a consecutive 365 day period for any purpose other than agricultural or horticultural purposes.

"Water table well" means a well in which water is derived from an unconfined or semi-confined aquifer.

"Well" means a hole or excavation deeper than it is wide, that is drilled, bored, core driven, jetted, dug, driven, or otherwise constructed for the purpose of removal of water from the subsurface.

"Well development" means the removal of sands and drilling materials from the water bearing zones of any well to produce water which is free of visible sand and/or silt and to verify well pumping capacity.

"Well driller" means a person possessing a New Jersey well driller's license of the proper class who engages in drilling, digging, driving, boring, coring, jetting, or other construction or repair of any well, and in the installation, removal, alteration, and repair of well pumping equipment and appurtenances thereto in connection with any well, including connecting lines between a well and a storage tank or appurtenances thereto.

"Well pit" means a below ground chamber or vault for the purpose of enclosing and providing access to a wellhead which terminates below grade.

"Well stimulation" means the stimulation of a well to increase its productivity by techniques including, but not limited to, blasting, hydro-fracturing, chemical treatment, surging and dry-icing.

"Yield", when used in this subchapter in reference to a well, means the capacity of a well to produce water at a constant pumping rate at which a stable water pumping level is maintained.

7:10-12.4 General provisions and prohibitions

(a) No person shall construct, alter, or replace a public noncommunity water system or nonpublic water system except in accordance with the standards set forth in this subchapter and any regulations adopted pursuant to the State Act and with the approval of the administrative authority as required pursuant to this subchapter.

(b) When two or more adjacent water systems are owned by the same person and, in combination, serve 15 or more realty improvements, the water systems shall be constructed in accordance with the rules and standards applicable to public community water systems at N.J.A.C. 7:10-11.

(c) A person seeking to build a realty improvement or seeking to alter or replace an existing water system shall determine whether to construct a public noncommunity water system or a nonpublic water system based on the following considerations:

1. If an adequate public community water system is available if such public community water system□s water lines are within 200 feet of the property line of the realty improvement or the existing water system, if connection can legally be made thereto, and if such connection is practical, then the realty improvement or the existing water system shall be supplied with water from that source except as provided in i. below. Such connection shall be considered practical unless the connection to the public community water system involves major construction such as the crossing of a highway, stream or body of water, or major utility easement; and/or distance from the water line or any other field condition renders such connection cost-prohibitive.

i. An existing well in an existing system may be replaced in lieu of such connection to a public community water system with the approval of the administrative authority.

2. The feasibility of establishing a new public community water system;

3. The dependability of the source of water supply;

4. Geology;

5. Major or minor pollutant sources as defined at N.J.A.C. 7:10-11.4(a)4 & 5; and

6. The components necessary to construct a balanced system of supply, pumping, treatment, distribution and finished water storage facilities to meet the peak demand.

(d) A person shall not drill, construct, install, repair, replace, modify, stimulate or decommission any well or engage in such business unless such person possesses a valid New Jersey well driller's license of the proper class or unless such drilling is performed under the immediate on-site supervision of a person who possesses a valid New Jersey well driller's license of the proper class issued by the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

(e) A person shall not undertake or arrange for any well drilling activity that is not under the immediate on-site supervision of a person who possesses a valid New Jersey well driller's license of the proper class issued by the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

(f) A person shall not drill, construct, install or replace a well unless such person has obtained a well permit from the Department pursuant to N.J.S.A. 58:4A-4.1 et seq.

(g) A person shall not install, repair or replace a well pump or well pumping equipment or engage in such business unless such person possesses a valid New Jersey pump installer's license or a valid New Jersey well driller's license of the proper class.

(h) A person shall not undertake any operation involving the drilling, coring, boring, driving, jetting, digging or other construction or repair of any well unless such operation is performed under the immediate on-site supervision of a person who possesses a valid New Jersey well driller's license of the proper class. The name of the well drilling company shall be prominently displayed on the equipment used by such person.

1. Wells, pumps, and related appurtenances serving a single dwelling or other nonpublic water systems may be configured by a master or journeyman well driller.

(i) A well driller shall not perform any well drilling operation without maintaining the area surrounding the operation in a sanitary condition and providing proper containment of all materials and surface drainage away from the well.

(j) No material that will cause the delivered water to be toxic shall be used in the installation of a well.

(k) Any component and/or construction material containing lead alloys used in a public noncommunity water system or nonpublic water system shall meet the following:

1. The lead content of solder and flux shall not exceed 0.2 percent.
2. The lead content of pipes, fittings, and any metallic components in contact with the drinking water shall not exceed 8 percent.
3. The use of lead packers on potable water wells is prohibited.

7:10-12.5 Deviations from construction standards

(a) The administrative authority shall issue an approval to construct a public noncommunity water system or nonpublic water system that deviates from the standards and requirements of this subchapter, except as provided in (c) below, if the applicant for such approval can establish that the proposed public noncommunity water

system or nonpublic water system provides adequate protection of the water system's water supply, as defined at N.J.A.C. 7:10-12.3. The administrative authority shall review such an application for approval using a conservative evaluation of data submitted by the applicant pursuant to (b) below.

(b) An applicant for an approval to construct a public noncommunity water system or nonpublic water system that deviates from the standards and requirements of this subchapter shall submit analytical and survey determinations which demonstrate either of the following:

1. That the source of water supply is adequately protected by natural means; or

2. That a comparable water system or pilot plant has operated for a period sufficient to demonstrate adequate protection of the water supply.

(c) Deviations from the well construction standards at N.J.A.C. 7:10-12.14 through 21 shall be approved by the Department.

(d) When a well driller believes unusual circumstances at a well drilling site are such that compliance with the general well construction standards for wells set forth at N.J.A.C. 7:12.16 will not adequately protect the water supply derived from the well, the well driller shall submit a written request to the Department for approval to construct the well to special standards. The request for approval shall include:

1. The purpose of the well;

2. The location of the well, including a site plan;

3. The name, address, and telephone number of the well owner;

4. The name, address, and telephone number of the well driller;

5. A description of the unusual circumstances warranting the request for approval to construct the well to special standards;

6. An explanation of the reasons that compliance with the general well construction standards is not practicable or sufficient under the circumstances;

7. The proposed special standards for construction that the well driller believes are practicable or sufficient under the circumstances; and

8. A diagram showing the pertinent features of the proposed well design and construction.

(e) The Department shall approve or deny in writing the request for approval to construct a well to special standards submitted pursuant to (d) above. An approval shall specify the special construction standards. A denial shall specify the reasons therefor.

7:10-12.6 Water volume requirements

(a) The pumping capacity from all available water sources for a public noncommunity or nonpublic water system shall meet the following minimum requirements:

1. For water systems that supply residential consumers, the system shall deliver a minimum of 2.0 gallons per minute per bedroom served for 30 minutes.

2. For water systems that supply all persons other than residential consumers and use hydropneumatic storage, the pumping capacity shall be 10 times the average daily demand as determined using Table 1 below. If gravity storage is used,

the minimum pumping capacity may be lowered, but not to less than the minimum required yield as set forth in (b) below.

(b) The total yield from all available water sources for a public noncommunity or nonpublic water system shall meet the following minimum requirements:

1. For water systems that supply residential realty improvements, the yield shall be at least 0.25 gallons per minute per bedroom served.

2. For water systems that supply all persons other than residential consumers, the yield shall be at least 3 times the average daily demand as determined using Table 1 below.

TABLE 1

AVERAGE DAILY WATER DEMAND

Type of Establishment	Gallons per Person
1. Cottage	100
2. Single family dwelling	100
3. Multiple family dwelling (apartment)	75
4. Rooming house	50
5. Boarding house**	75
a. For each nonresident boarder	15
6. Hotel**	50-75
7. Motel or tourist cabin	50-75
8. Mobile home park	100
9. Restaurant	
a. Sanitary demand, per patron	5
b. Kitchen demand, per patron	5
c. Kitchen and sanitary demand	10
10. Camp*	
a. Barracks type	50
b. Cottage type	40
c. Day camp (no meals served)	15
11. Day school	
a. No cafeteria or showers	10
b. With cafeteria and no showers	15
c. With cafeteria and showers	20
d. With cafeteria, showers and laboratories	25
12. Boarding school**	100
13. Health care institution other than hospital	75-125
14. Hospital (depending on type)	150-250
15. Industrial facility (8 hour shift)	25
16. Picnic grounds or comfort station	
a. With toilet only	10
b. With toilet and showers	15
17. Swimming pool or bathhouse	10

18. Club house**	
a. For each resident member	60
b. For each nonresident member	25
19. Nursing home	150
20. Campground	
a. Without individual sewer hook-up	75 per site
b. With individual sewer hook-up	100 per site
c. With laundry facility and individual sewer hook-up	150 per site
21. Store, office building	0.125 gal/sq. ft
22. Self-service laundry	50 gal/wash

* When the establishment will serve more than one use, the multiple use shall be considered in determining water demand.
** Includes kitchen demand at 10 gallons per person per day.
If laundry demand is anticipated, the estimated water demand shall be increased by 50 per cent.

7:10-12.7 Sources of water

(a) The source of water for a public noncommunity or nonpublic water system shall be a well or wells, except that the administrative authority will approve the use of a spring or springs in accordance with N.J.A.C. 7:10-12.23 if construction of a well is not possible due to the local terrain, and/or geology, provided the water derived from the spring or springs is disinfected pursuant to N.J.A.C. 7:10-12.32. Dug wells, Kelly concrete-cased wells and/or their equivalents, and cisterns shall not be used as a source of water for such systems unless approved by the Department in accordance with N.J.A.C. 7:10-12.25.

(b) Duplicate wells and pumping equipment, or interconnection with another water system, shall be installed and ready to be used for a water system for which the average water demand exceeds 30,000 gallons per day.

(c) A single nonpublic water system shall not serve multiple realty improvements unless one person owns and directly controls all such realty improvements.

7:10-12.8 Frost protection

All parts of a public noncommunity or nonpublic water system shall be designed, located and constructed to protect the water against freezing.

7:10-12.9 Physical connection

No physical connection shall be established between a public noncommunity or nonpublic water system constructed in accordance with this subchapter and a public community water system unless the physical connection is approved in accordance with N.J.A.C. 7:10-10.

7:10-12.10 Priming systems

All water used to prime pumps for a public noncommunity or nonpublic water system shall be potable water, to prevent the contamination of the water system.

7:10-12.11 Disinfection of water system components

(a) After completion of construction, alteration or repair of a public noncommunity or nonpublic water system, all surfaces with which adequately protected water may come into contact shall be disinfected before being placed into service.

(b) Methods of disinfection include, but are not limited to, the following:

1. Contact with a chlorine solution of concentration not less than 50 parts per million (ppm) for a minimum period of 12 hours;

2. Contact with a chlorine solution of concentration not less than 20 ppm for a minimum period of 24 hours;

3. Thorough wetting of the surfaces to be disinfected by means of brush or spray application of a chlorine solution of concentration not less than 500 ppm for a minimum contact period of one hour.

(c) The method or methods for the disinfection of water system components shall be included in the materials submitted with the application for certification of a new, repaired or altered public noncommunity or nonpublic water system pursuant to N.J.A.C. 7:10-12.39 to 42.

7:10-12.12 Minimum distance requirements

(a) The minimum distances at which certain components of a public noncommunity or nonpublic water system shall be located away from sanitary sewer and septic systems, fuel storage tanks and other structures are set forth in Table 2, below.

TABLE 2
Minimum Distance in Feet

Component	Building sewer	Septic tank	Distri-bution box	Disposal field	Seepage pit	Dry well	Cess-pool	Fuel storage tank
Well	25	50	50	100	150/100*	50	150	25
Suction line	25	50	50	100	100	50	150	-
Water service line	5	10	10	10	10	-	25	-

*The 150 foot minimum distance between a well and a seepage pit system shall apply only when a new well is being installed in conjunction with a new seepage pit system pursuant to N.J.A.C. 7:9A-4.3.

1. An administrative authority may require a greater distance than that listed in Table 2 between a well and a sewage system component where gravel, limestone, or fractured, creviced or fissured rock formations are expected to be encountered during drilling.

2. An administrative authority shall approve a reduction in the distance required between a well and a disposal field or a seepage pit to a minimum of 50 feet, if the well is provided with a casing to a depth of 50 feet or more and such casing extends to, and is sealed into, a confining layer separating the aquifer into which the well is drilled from the stratum of soil in which the disposal field is located.

3. The reference to cesspools contained in Table 2 of this subsection is intended only to specify the minimum distance from an existing cesspool that water systems must be located. Cesspools are regulated by the Department pursuant to N.J.A.C. 7:9A, Standards for Individual Subsurface Sewage Disposal Systems.

4. The minimum distance and location requirements for distribution mains are set forth at N.J.A.C. 7:10-12.36.

5. The administrative authority shall approve a reduction in the distance from a well to a building sewer to a minimum of 15 feet if it can be demonstrated that the building sewer is watertight and there are no other practicable alternatives.

(b) A well shall not be drilled within 20 feet of a wood frame building. The Department recommends a minimum distance of 50 feet between a well and a wood frame building.

(c) A well shall be located at least 5 feet horizontally from a structure or any portion thereof, other than a pumphouse that serves the water system.

(d) The Department shall increase the minimum distance requirements for an individual well if the natural geologic conditions do not provide adequate protection of the water supply (e.g. cavernous limestone).

(e) The Department shall reduce the minimum distance requirements for an individual well if the well driller demonstrates that such distances are not feasible and

adequate protection is provided through alternative well construction methods pursuant to N.J.A.C. 7:10-12.5(d).

7:10-12.13 Well room

(a) A well shall not be constructed within the cellar or basement of any realty improvement.

(b) Well pits are prohibited unless the administrative authority approves their use in circumstances where the use of a pitless well adapter or an above-grade wellhouse is not feasible.

7:10-12.14 Specific requirements for wells constructed in unconsolidated formations

(a) In addition to the requirements set forth at N.J.A.C. 7:10-12.16 through 7:10-12.21, each well constructed in an unconsolidated formation shall meet the following:

1. The well casing shall be no less than 4 inches in inside diameter and no less than 50 feet in depth.

2. The diameter of each well screen shall not be less than 3 inches.

3. Each well screen mesh shall be properly sized so that the water produced at the well head is visibly free of sand and/or silt.

7:10-12.15 Specific requirements for wells constructed in consolidated formations

(a) In addition to the requirements set forth at N.J.A.C. 7:10-12.16 through 7:10-12.21, each well constructed in a consolidated formation shall meet the following:

1. The well casing shall be steel and shall conform to the minimum thickness specifications set forth in Table 3 below.

TABLE 3

Steel Casing Pipe Weights and Dimensions

Nominal size (inches)	Plain End Weight (lb/ft)*	Threads & Coupling Weight (lb/ft)*	Threads reamed/ recessed & Drifted Coupling Weight (lb/ft)*	Thickness (inches)	Outside Diameter (inches)	Inside Diameter (inches)
4	10.79	10.89	11.00	0.237	4.500	4.026
5	14.62	14.81	15.00	0.258	5.563	5.047
6	18.97	19.18	19.45	0.280	6.625	6.065
8	24.70	25.55		0.277	8.625	8.125
10	40.48	41.85		0.365	10.750	10.020
12	43.77	45.45		.330	12.750	12.090
14	54.57	57.00		.375	14.000	13.250
16	62.58	65.30		.375	16.000	15.250
18	70.59	73.00		.375	18.000	17.250
20	78.60	81.00		.375	20.000	19.250

*Nominal weight based on length of 20 feet including coupling.

2. A well casing shall not be less than six inches in inside diameter.

3. Each well shall have a minimum of 50 feet of casing and be constructed with a minimum of 20 feet of casing set into unweathered rock.

7:10-12.16 General construction requirements for wells

(a) The drilling, constructing, altering, and repairing of each well (i.e., for each well drilling rig on-site) shall be performed under the immediate on-site supervision of a person who possesses a valid New Jersey well driller□s license of the proper class.

(b) The area surrounding a well during construction shall be maintained in a clean condition and surface drainage shall be diverted away from the well.

(c) All water used in the construction, alteration, repair, or decommissoning of any well shall be potable water.

(d) The Department shall require a well constructed in an area of known contamination, as reported by the Department, or salt water intrusion to be double-cased if construction of a single-cased well will compromise the integrity of the well or cause contamination of the water supply.

1. The outermost well casing shall be constructed into the first confining layer which separates the water source from any such contamination. This casing shall extend at least 20 feet into the confining layer or to the base of the confining layer.

2. The annular space between the casing and borehole shall be sealed in accordance with N.J.A.C. 7:10-12.19. The annular space between all subsequently installed well casings shall also be permanently sealed to protect all underlying aquifers as well as the water source from contamination.

3. A well with a casing that extends through salt water into fresh water shall be double-cased.

(e) After a well is drilled, but prior to completion, the casing shall be capped and any open annular space covered until the well is completed.

(f) A completed well shall be developed to produce the best practical yield and quality of water. The water produced shall be visibly free of sand and/or silt.

(g) Any poor water quality or non-productive well that cannot be used for its intended use or purpose shall be decommissioned in accordance with N.J.A.C. 7:9.

(h) A well shall not be screened or gravel packed in more than one aquifer or screened across a confining layer.

(i) All well drilling rigs, tools, pipe and other drilling equipment shall be maintained in a clean and operational state to prevent contamination of the well and/or work site.

(j) The Department shall prohibit the use of any material or equipment in the construction and/or maintenance of any well if such use will cause the water supply to exceed maximum contaminant levels set forth in N.J.A.C. 7:10-5 and 7.

(k) Any waste materials, including unusable casing, cuttings, sediment, displaced water, or free products, generated during drilling, shall be handled in accordance with N.J.A.C. 7:26.

(l) An existing well shall not be built over by any realty improvement that would inhibit access to the well for repair, replacement or decommissioning.

(m) When permanent casing is to be driven into an undersized borehole, the diameter of the borehole shall be less than the inside diameter of the casing.

(n) A drive shoe shall be placed on each casing that is to be driven.

(o) When a well casing is to be installed into an oversized borehole, the diameter of the borehole shall be a minimum of 4 inches greater than the inside diameter of the well casing.

(p) A temporary outer casing of the same diameter as the oversized borehole may be installed to prevent cave-in provided each temporary outer casing is removed during the sealing of the annular space.

(q) Sanitary safeguards shall be installed to the top of the borehole and/or the top of the well casing to prevent surface water and any other contamination from entering the well during construction and/or during the periods when the well driller is not at the drilling site.

(r) When the drilling of a pilot hole for any well is suspended and the drilling rig is moved away from the drilling site, the pilot hole shall be considered abandoned and subject to the decommissioning requirements of N.J.A.C. 7:9 unless drilling is resumed within three business days from the initial date of suspension.

(s) Each flowing well shall be equipped with a watertight cap which is threaded, slip-on or welded, and a control valve or appurtenances necessary to protect the integrity of the well and/or wellhead. Any overflow of water from the well shall not become a public nuisance or violate any New Jersey law or regulation.

(t) If the Department or administrative authority determines that any well, or any appurtenances thereto, is not properly maintained, or has deteriorated to such an extent that contamination might enter the well and/or ground water or that the well constitutes a physical hazard, the Department or administrative authority may order the repair and/or maintenance of the well or appurtenances thereto as necessary to prevent contamination of the well and/or ground water or to mitigate the physical hazard.

7:10-12.17 Well casings

(a) All well casing material shall be approved for its intended use by the National Sanitation Foundation (NSF) and either the American Water Works Association (AWWA) or the American Society for Testing and Materials (ASTM).

(b) Plastic well casing shall be Schedule 40 or better as specified in ASTM F480-91 or ASTM D1527, as revised and/or supplemented.

(c) The installed depth of any plastic well casing shall be in accordance with the well casing manufacturer’s specifications.

(d) The driving of plastic well casings is prohibited.

(e) Plastic well casing shall be used only in wells constructed in unconsolidated formations.

(f) Standard steel well casing shall conform to ASTM standard A-53 or A-120, or American Petroleum Institute (API) standard specifications 5A or 5L, as revised and/or supplemented incorporated herein by reference. Steel well casing shall conform to

American National Standards Institute (ANSI) dimensions and shall conform to the specifications and requirements listed in Table 3 at N.J.A.C. 7:10-12.15(a).

(g) Each outer well casing and liner shall be of the same weight and thickness as the permanent well casing.

(h) Each well casing and liner pipe joint shall be watertight.

(i) Plastic well casings shall be joined to each other by solvent welding or joined mechanically by threaded connections, depending on the type of plastic and its fabrication. Solvent cement used for solvent welding shall meet the specifications for the type of plastic well casing used. Solvent cement shall be applied in accordance with the instructions of the solvent and casing manufacturers.

7:10-12.18 Well screens and gravel packing

(a) A well screen shall be installed in a well if necessary to ensure that the water produced from the well is visibly free from sand and/or silt.

(b) The openings in the well screen shall afford maximum open surface area consistent with the strength of screen material and the sediment grain size of the water bearing formation in which the well is constructed and/or any sand or gravel pack adjacent to the screen. The screen shall permit maximum water transmission without clogging.

(c) Well screens, unless commercially manufactured, which are constructed by creating openings or slots in the well casing and/or liner by mechanical means are prohibited.

(d) Each well screen shall be provided with such fittings as are necessary to seal it to the casing and to close the bottom of the screen. The use of lead packers is prohibited (see N.J.A.C. 7:10-12.4 (k)3).

(e) Gravel or filter packs installed in wells shall conform with the following:

1. Gravel or filter pack placed between the borehole and the well screen shall be clean, washed, and disinfected prior to emplacement. Gravel or filter pack may be disinfected in place by the introduction of granular chlorine or chlorine tablets during the gravel pack operation.

2. The grain size and gradation of the filter material shall be sufficient to stabilize the aquifer material during well development.

3. The gravel or filter pack shall not extend into the confining layer above the screen, and shall comply with the following:

i. For well screens less than or equal to 20 feet in length, the gravel or filter pack shall not extend more than 10 feet above the top of the well screen;

ii. For well screens greater than 20 feet in length, the gravel or filter pack shall not extend more than 50 percent of the length of the well screen itself above the top of the well screen. In no case shall the filter pack extend more than 50 feet above the top of the well screen.

4. Gravel refill pipes may be installed only in wells with a casing diameter of 8 inches or greater and only if they terminate above the ground surface, are sealed in place, and are provided with watertight caps.

5. Gravel or filter pack shall be placed around each screen in accordance with either i or ii below:

i. For gravity placement, the filter material shall be poured into the annular space around the screen at a measured and uniform rate. This method of placement shall be used only for wells less than 100 feet in depth.

ii. For tremie pipe placement, the filter material shall be placed through a tremie pipe that has been lowered to the bottom of the well. This method of placement shall be used for all wells 100 feet in depth or greater, using gravel pack mixed with potable water.

7:10-12.19 Requirements for sealing the annular space of wells

(a) Except as provided pursuant to (l) below, the annular space between an oversized borehole and the well casing in a well and/or between the casing(s) in a multiple-cased well shall be sealed with one of the materials specified in (b) through (d) below and in accordance with the requirements of (e) through (k) below.

(b) Portland Neat Cement shall be used in accordance with the following specifications:

Type of cement	Pounds of cement	Gallons of water	Target density (lbs/gal)	Acceptable density range (lbs/gal)	Water/cement ratio
I & II	94	5.2	15.6	15.0 to 16.3	0.46
III	94	6.3	14.8	14.2 to 15.5	0.56

(c) A mix of Portland Cement and High-grade Bentonite shall be used in accordance with the following specifications:

Percent of bentonite	Pounds of bentonite	Pounds of cement*	Gallons of water	Target Density (lbs/gal)	Acceptable Density (lbs/gal)	Water / cement ratio
5.3	5.0	94	8.3	13.9	13.4 to 14.5	0.74

* Portland Cement Type I and II only.

(d) High-grade Bentonite shall be used in accordance with the following specifications:

Pounds of bentonite	Target gallons of water	Acceptable range for water content (gallons)	Target density (lbs/gal)	Acceptable density range (lbs/gal)
50	18	14-34	9.8	9.2 to 10.2

(e) All materials shall be accurately measured prior to mixing.

(f) Bentonite products and additives shall be mixed in accordance with the manufacturer's specifications.

(g) Bentonite shall not be used to seal any annular space in consolidated formations or in those instances where it will come in contact with ground water of a pH of less than 5.0 and/or a total dissolved solids content in excess of 1,000 ppm.

(h) Salt-water resistant grout shall be used if the grout material will come in contact with salt water.

(i) All annular space between well casing(s) shall be sealed, excluding the annular space between a maintenance casing and the permanent casing.

(j) The annular space shall be sealed in accordance with one of the methods specified in (j)1 and 2 below, and following the procedures set forth at (k) below.

1. For the pressure method, the grout shall be pumped through a tremie pipe as specified at i and ii below or shall be forced under pressure from the inside of the well casing in one continuous operation, from the bottom to the top of the annular space, unless the depth, resulting pressures, or subsurface conditions necessitate that grout be installed in lifts.

i. The tremie grout pipe shall be slowly raised as the grout is being placed, keeping the discharge end of the pipe submerged in the grout at all times until sealing of the annular space is completed.

ii. When pressure sealing the annular space directly above a filter or gravel pack, the grout shall be discharged from the tremie pipe so as not to disturb the top of the filter or gravel pack.

2. The displacement method shall be used only for wells in consolidated formations. A sufficient quantity of grout shall be pumped under pressure through a tremie pipe into the oversized borehole to ensure that the annular space will be completely filled with grout after the emplacement of a plugged casing into the borehole.

(k) The following procedures shall be used during the sealing of the annular space by the methods set forth at (j) above.

1. All water used for the mixing of grout shall be of potable quality.

2. All grout mixtures shall be weighed with a mud balance or otherwise verified by the well driller as conforming with the materials specifications of this section.

3. The grout mixture shall be brought up to ground level so as to displace all water and materials in the annular space. The finished level of the grout seal shall be at the level of the pitless well adapter or other connection.

4. The grout being discharged from all annular spaces shall be weighed with a mud balance or otherwise verified by the well driller as conforming with the materials specifications of this section.

5. During the sealing of the annular space, the casing shall be maintained in a centered position within the oversized borehole.

6. The annular space in any well shall be sealed no later than 24 hours after the setting of the well casing.

(l) When a casing is driven into an undersized hole, the requirements in this section for sealing the annular space shall not apply. This exemption is limited to wells constructed in unconsolidated formations.

7:10-12.20 Well head requirements

(a) Each well head shall be constructed so as to ensure adequate protection of the water supply and to prevent entry of any contaminant.

(b) The well casing shall extend a minimum of 12 inches above grade and shall be equipped with a pitless well adapter, except for wells located in a well pit or pump house that ensures adequate protection of the well and wells located in driveways as flush mount installation provided with water tight lids.

1. When an existing buried well with an inside diameter of 4 inches or greater is exposed for any purpose other than decommissioning, the well head shall be retrofitted with appurtenances (i.e., pitless well adapter, down-facing casing vent) in accordance with requirements of this section.

(c) Whenever possible, the well pump shall be designed and located so as to make the use of a well pit unnecessary. An administrative authority shall approve the use of a well pit only if the use of a pitless well adapter or an above-grade well room is not practicable and if adequate drainage is provided by a sump pump or other means. The direct connection of the drainage line or the sump pump discharge line to a sanitary sewer or storm drain is prohibited.

(d) The well head shall be sealed with either a pitless well cap or a sanitary well seal.

(e) Each well shall be provided with a down-facing casing vent located at least 12 inches above the flood level. All vents shall be screened against the entry of insects.

(f) Upon completion of well construction, the well casing shall be securely capped until the well pump is installed and/or the well is placed in service or until the well is decommissioned. The cap shall be threaded onto the casing or locked onto the outside of the casing by friction, or be a blank sanitary well seal or any other type of cap approved by the Department.

7:10-12.21 Pitless well installation

(a) Regulations for the installation of pitless wells are as follows:

1. A pitless well installation shall consist of either a pitless well unit or pitless well adapter, and a pitless well cap or a sanitary well seal.

2. Pitless well units, pitless well adapters and pitless well caps shall be constructed in accordance with the Recommended Standards (PAS-1) of the Water Systems Council as amended and supplemented, incorporated herein by reference. The standard may be obtained from the Water Systems Council, 800 Roosevelt Road, Building C, Suite 20, Glen Ellyn, IL 60137.

3. The lateral discharge line from the well shall be covered with a minimum of 3.0 feet of earth. In northern portions of the State (i.e., Passaic, Sussex and Warren counties) additional earth cover to prevent freezing may be necessary.

(b) Pitless well adapters shall be installed as follows:

1. The hole used to install the lateral discharge line into the well casing shall be made in such a manner as to provide a watertight connection.

2. The exterior connection between the adapter and the well casing shall be welded, threaded, or of a clamp-on gasket type. Extreme care shall be exercised when the connection is welded to ensure a complete, watertight seal. A clamp-on gasketed adapter shall be installed only on a well casing with a smooth, clean surface.

(c) Pitless well units shall be installed as follows:

1. At the point of attachment to the well casing, a pitless well unit shall be field-welded, threaded, or of the slip-on type with "O-ring" gasket, and shall be of watertight construction.

i. If the connection is by means of a field-weld, the pitless well unit shall be of a type specifically designed for a welded connection.

ii. If the connection is of the slip-on type with "O-ring" gasket, the surface of the well casing shall be smooth and clean.

2. The field connection between the pitless well unit and the lateral discharge line shall be either threaded, flanged or a mechanical joint, and shall be constructed and installed so as to be watertight.

7:10-12.22 Test for yield and submission of well report

The well driller shall test each completed well for yield and shall complete and submit a well report, on a well record form provided by the Department with the issued well permit, to the Bureau of Water Allocation in the Department at CN 426, Trenton, New Jersey 08625, in accordance with N.J.S.A. 58:4A-14 et seq. The well record form includes the following information: well permit number, well owner, name and address, well location address, well use, date constructed, well construction details (i.e., depth, borehole diameter, casing(s), grouting, screen(s), and gravel pack), pumping test records, permanent pumping equipment, geologic log, and certification by the well driller.

7:10-12.23 Springs

(a) An administrative authority shall approve the use of a spring only when construction of a well is not practicable, and provided the water derived from the spring is disinfected in accordance with N.J.A.C. 7:10-12.32.

(b) Any spring approved by the administrative authority as a water source pursuant to this section shall meet the following requirements:

1. Each spring shall be provided with an encasement of concrete or other durable material to prevent contamination of the spring. Such encasement shall be installed so as not to restrict the flow of water into the encasement;

2. The walls of the encasement shall be extended above the elevation of the surrounding ground to prevent the entry of surface water, and the roof shall have a watertight access cover so that the interior of the encasement may be inspected, cleaned, and/or repaired as necessary;

3. The encasement shall be provided with an overflow constructed so as to prevent erosion of the fill surrounding the structure. The overflow shall be constructed so as to prevent the entry of rodents and insects, and shall be downfacing so as to prevent the entry of rain water; and

4. The joint between the encasement wall and any pipe passing through the wall shall be constructed and installed so as to prevent the entry of surface water.

7:10-12.24 Cisterns and dug wells

Cisterns and dug wells shall not be used as sources of water for public noncommunity or nonpublic water systems constructed after the effective date of this chapter.

7:10-12.25 Surface water sources

(a) Surface water shall not be used as a water source for a nonpublic water system.

(b) The Department will approve the use of surface water for a public noncommunity water system only if use of a well water supply is impracticable and if the surface water is treated pursuant to N.J.A.C. 7:10-12.33.

(c) Public noncommunity water systems using surface water sources shall be constructed in accordance with N.J.A.C. 7:10-11.8 and shall meet the water treatment requirements of N.J.A.C. 7:10-12.33.

7:10-12.26 Design requirements for well pumping equipment

(a) Well pumps and appurtenant equipment shall be designed and installed to ensure adequate protection of the water supply and protection against freezing of the water.

1. Well pumps and appurtenant equipment shall be installed by a well driller or pump installer.

(b) Each well pump shall have a foot-valve or a check valve.

(c) In a screened well, the well pump setting and suction inlet shall be located so that the pumping level of the water cannot be drawn below the top of the screen.

7:10-12:27 Well pump down control

(a) Any well with a yield of less than five gallons per minute (gpm) shall be equipped with a low water level cut-off device.

(b) Any well with a pump capacity greater than the yield of the well shall be equipped with a low water level cut-off device.

7:10-12.28 Location requirements for pumping equipment

(a) Whenever possible, pumping equipment shall be designed and located so as to avoid the need for a pump pit. A pump pit, if used, shall be of watertight construction and shall have a drainage system or sump pump installed to prevent flooding.

(b) The pumping equipment shall be located so as to permit convenient access for the removal and repair of the pump and related appurtenances.

(c) Each pump shall be mounted so as to prevent excessive vibration and noise and to prevent damage to the pump.

7:10-12.29 Pump controls

(a) A pressure switch and a thermal overload switch are required on all pump installations.

(b) A pressure relief valve is required on all positive displacement pumping systems.

(c) Pump controls and/or accessories shall either be housed in a secured building or be enclosed in a weather-proof, locked cabinet.

7:10-12.30 Water quality analysis and treatment

(a) Upon completion of construction of a water system, the owner of a public noncommunity or nonpublic water system shall sample and analyze the microbiological quality of the raw water from the system and submit a copy of the results of the analysis to the administrative authority.

1. If the water does not meet the microbiological requirements of the State primary drinking water regulations at N.J.A.C. 7:10-5, the owner shall disinfect the water in accordance with N.J.A.C. 7:10-12.32.

2. Regardless of the raw water microbiological quality, the owner of a nonpublic water system or public noncommunity water system that uses a spring or surface water source shall disinfect the water in accordance with N.J.A.C. 7:10-12.32.

(b) The owner of a public noncommunity water system shall sample and analyze the raw water from the system for inorganics, volatile organic compounds (VOCs), and radionuclides in accordance with N.J.A.C. 7:10-5 and for secondary contaminants in accordance with N.J.A.C. 7:10-7. If the system uses a surface water source, the administrative authority will require the system owner to sample and analyze the water for disinfection by-products and pesticides regulated pursuant to N.J.A.C. 7:10-5.

(c) The owner of a nonpublic water system shall sample and analyze the raw water from the system for nitrates, iron, manganese, and pH. The administrative authority may require sampling and analysis for inorganic chemicals, volatile organic compounds and/or radionuclides as appropriate based on the region and the aquifer in which the water source is located.

(d) The owner of the water system shall submit a copy of the results of the analyses conducted pursuant to (b) and (c) above to the administrative authority.

(e) Based on the results of the analyses submitted pursuant to (d) above, the administrative authority may require physical and chemical treatment of the water in accordance with N.J.A.C. 7:10-12.33.

(f) The owner of public noncommunity or nonpublic water system that uses a surface water source shall filter the water before it enters the distribution system using a filtration method approved by the Department. Public noncommunity water systems shall in addition meet the requirements of N.J.A.C. 7:10-9.

(g) All analyses required pursuant to this section shall be conducted at a certified laboratory, certified in accordance with N.J.A.C. 7:18 for the specific analytical method used.

(h) The administrative authority will require the owner of a public noncommunity water system or nonpublic water system to provide treatment of the water when the water supply does not meet any of the maximum contaminant levels specified at N.J.A.C. 7:10-5.

(i) The administrative authority shall require the owner of a public noncommunity water system or nonpublic water system to provide treatment of the water when it determines that the exceedance of one or more of the standards established in the State Secondary Drinking Water Regulations, N.J.A.C. 7:10-7, causes adverse effects on consumers of that system's water.

7:10-12.31 Chemical handling and chemical feed systems

(a) General requirements for chemical handling and chemical feed systems are as follows:

1. Suitable means shall be provided to ensure proper and continuous application rate of chemical.

2. Variation of the feed rate shall not exceed five percent of the intended application rate.

3. Chemical solution feeders shall be located so as to prevent dust and fumes from entering other operating areas in the treatment plant.

4. Chemical solution shall not be introduced directly into any pipe or conduit under negative pressure or directly into a well.

5. An antisiphon device shall be installed on the chemical solution feed line. The device shall include an antisiphon valve to provide a vacuum break on the chemical solution feed line. The chemical feel line shall be looped to a level higher than the highest elevation of the chemical storage tank so as to prevent backsiphonage or drainage of the chemical solution into the treated water supply.

6. Each chemical solution feeder shall be equipped with a no-flow switch to prevent the feeding of chemical solution upon cessation of water flow.

(b) Rules for chemical solution tanks are as follows:

1. When dissolving a solid treatment chemical, each chemical solution tank shall be provided with adequate agitation to keep the strength of the solution uniform.

2. Makeup water shall be introduced into the chemical solution tank through an air break or other approved method, to prevent back-siphonage.

3. Each chemical solution tank shall be equipped with a cover to prevent contamination and shall be of capacity sufficient to provide at least 24 hours worth of storage at normal operating feed rates.

(c) Chemical feed lines shall be equipped with clean-out connections, shall be easily accessible for repair or cleaning, shall be protected against damage and freezing, shall be corrosion resistant, shall be as short as possible, and shall be provided with adequate slope to permit draining.

(d) Where applicable, as determined by the administrative authority, safety equipment such as a shower, a U.S. Bureau of Mines approved respirator, rubber or neoprene gloves and apron, and goggles shall be provided.

7:10-12.32 Disinfection of public noncommunity and nonpublic water systems

(a) General regulations for disinfection are as follows:

1. Disinfection shall be accomplished using chlorination, ultra-violet light, or ozonation, in accordance with the methods described in (b), (c) or (d) below.

2. The owner of any public noncommunity water system with an extensive service area shall maintain a detectable disinfectant residual in the water distribution system. For purposes of this subsection, an extensive service area is 100 service connections or 1500 linear feet of water mains or gravity storage.

3. Chlorine disinfection shall be accomplished in accordance with the chlorine contact period and residual requirements set forth in N.J.A.C. 7:10-11.16 (e).

(b) Regulations for chlorination are as follows:

1. The administrative authority shall approve the use of gas chlorination for public noncommunity and nonpublic water systems only if the use of hypochlorite feed systems are impractical for the specific application.

2. The chlorinating device shall be capable of producing a chlorine residual after the contact period as required pursuant to N.J.A.C. 7:10-11.16(e)3. A chlorine residual test kit shall be used to verify that the correct application rate is maintained.

3. The chlorination device shall be protected from freezing.

4. Gas chlorinating devices shall be located in above-grade separate rooms with an outside entrance only and shall have proper ventilation including an exhaust fan near floor level with an outside switch. An observation window to permit visual inspection without opening the door of the chlorine room shall be provided. The doors of such rooms shall open outward and shall be provided with panic type hardware (that is, a push bar for opening the door) on the inside of the door. A room heater shall be provided. Chlorine scale and storage rooms shall be equipped in the same manner.

5. Operation of the chlorinating devices shall be synchronized with the operation of the well pump.

(c) Regulations for disinfection by ultra-violet light are as follows:

1. Ultra-violet tubes shall be jacketed so that a temperature of 105 degrees Fahrenheit is maintained.

2. The jacket on the ultra-violet light tubes shall be quartz or high-silica glass with similar optical characteristics.

3. The ultra-violet light disinfection unit shall be designed to permit frequent mechanical cleaning of the water contact surface of the ultra-violet light tube jacket without disassembly of the unit.

4. The maximum water depth in the disinfection chamber, measured from the ultra-violet light tube surface to the outer walls of the chamber, shall not exceed three inches.

5. Ultra-violet radiation at a level of 2,537 Angstrom shall be applied at all points throughout the disinfection chamber at a minimum rate of 16,000 microwatt seconds per square centimeter.

6. An automatic flow control valve, accurate within the expected pressure range, shall be installed to restrict flow to the maximum design flow of the ultra-violet disinfection unit.

7. An accurately calibrated ultra-violet light intensity meter, filtered to confine its sensitivity to the range of disinfection spectrum, shall be installed in the wall of the disinfection chamber at the point of greatest water depth from the light transmitting source.

8. A flow diversion valve or automatic shut-off valve controlled by the ultra-violet light intensity meter shall be installed so as to permit water flow into the water system only when the minimum radiation level specified at (c)5 is applied. When power is not being supplied to the unit, the valve shall be in a closed (fail-safe) position to prevent the flow of water into the water system.

9. The ultra-violet light disinfection unit shall be installed in a manner such that it cannot be bypassed.

(d) Regulations for disinfection by ozonation are as follows:

1. Ozonation may be used for disinfection of any public noncommunity or nonpublic water system.

2. Ozonation shall not be used as a substitute for postchlorination if the water system is required to maintain a chlorine residual in the distribution system pursuant to (a) 2 above.

3. Equipment used for ozonation shall be durable and corrosion resistant.

7:10-12.33 Chemical and physical treatment

(a) General requirements for chemical and physical treatment are as follows:

1. A public noncommunity water system using a surface water source is subject to the requirements of N.J.A.C. 7:10-11.8, 11.12, 11.13, and 11.14.

2. Treatment facilities shall be capable of producing water that meets the applicable State primary and/or secondary drinking water regulations at N.J.A.C. 7:10-5 and 7.

3. Treatment units shall be of sufficient capacity to produce the daily volumes of water required pursuant to N.J.A.C. 7:10-12.7.

4. All filter shells, ion-exchange pressure tanks and chemical solution feed drums shall be constructed of corrosion resistant materials or contain non-corrodible liners.

5. Point of entry treatment (POET) devices may be used to treat water in any public noncommunity or nonpublic water system. The Department recommends that such devices be certified to meet appropriate ANSI/NSF standards 42, 44, 53, 55, 58, and 62 as amended and supplemented, or the equivalent. POET devices shall also meet ANSI/NSF Standard 61 if used in public noncommunity water systems. In addition, POET devices shall meet the following requirements:

i. Each device shall be equipped with sampling water taps before and after the point at which treatment is applied;

ii. The manufacturer’s specifications and the owner's manual for operation and maintenance of each POET device shall be available on-site at all times;

iii. The owner of the water system shall conduct an efficiency test of the device upon its installation. The administrative authority shall require the owner of the public noncommunity water system to conduct periodic water quality testing once every three months if the POET device is installed to remove primary contaminants.

6. Wastewater resulting from the backwashing or regeneration of filter media and/or ion exchange resin shall not be discharged to a sanitary sewer system except in accordance with the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:14A, and with written approval from the appropriate sewerage authority.

(b) Regulations for corrosion control are as follows:

1. pH adjustment for corrosion control is recommended when the pH of the raw water is less than 6.5. The pH adjustment system used for corrosion control shall be capable of raising the pH to a minimum of 7.5 units.

2. A neutralizing filter consisting of a bed of graded limestone may be used to adjust pH.

3. Injection of alkaline chemicals may be used to adjust pH only if the following conditions are met:

i. Only soda-ash, lime, or caustic soda shall be fed by means of a positive displacement pump. Due to safety considerations, the Department does not recommend using caustic soda in small water systems and single dwelling water supply systems.

ii. Operation of the feed pump shall be synchronized with the operation with the well pump.

iii. Safety equipment including respirator, gloves, apron, shower and eye wash facilities shall be provided.

(c) Regulations for removal of iron and manganese are as follows:

1. Iron and manganese removal units shall include an oxidizing process (natural precipitation or chemical precipitation) followed by a filtration process.

2. Iron and manganese removal units which include an open aeration process shall be designed and constructed so as to minimize dust pickup. All air which enters the oxidizing unit shall pass through a corrosion-resistant screen of not less than 24 mesh in order to prevent the entry of insects. Forced air which enters the oxidizing unit shall pass through air particulate filters.

3. Iron and manganese removal units which include an ion exchange process (for example, water softening) shall be designed and constructed such that the treated water will not contain a sodium concentration in excess of 50 mg/l pursuant to N.J.A.C. 7:10-7. The treated water shall not be softened to zero hardness. Potassium regenerant may be used as an alternative to sodium regenerant.

(d) Packed column aeration (PCA) units or equivalent air strippers shall be capable of removing volatile organic compounds (VOCs) from at least twice the maximum levels found in the water to below the applicable MCLs. If the PCA unit is followed by a Granular Activated Carbon (GAC) unit(s), the removal of VOCs may be achieved through the combined use of both treatment units.

1. Each air intake on forced aeration or mechanically induced aeration systems must be equipped with an air particulate filter; and

2. Taps by which water can be sampled shall be placed before and after the PCA unit.

(e) Granular activated carbon (GAC) units used for the removal of VOCs shall meet with the following requirements:

1. Each GAC unit shall have a minimum carbon life (prior to VOCs breakthrough) of three months;

2. Taps by which water can be sampled shall be placed before and after each GAC unit tank; and

3. Only virgin GAC shall be used, except regenerated GAC may be used if such GAC was used previously only in potable water treatment plants and regenerated in facilities used only for potable water treatment plant filter media.

(f) Any type of water treatment not described in (a) through (e) above shall meet the requirements of N.J.A.C. 7:10-11.15, as applicable.

7:10-12.34 General requirements for storage of finished water

(a) Storage for finished water shall be an integral component of each public noncommunity and nonpublic water system.

(b) The location, size and type of finished water storage facility shall be such as to provide a minimum pressure of 20 psi under all flow conditions.

(c) All finished water storage facilities shall be designed to permit dewatering for cleaning and maintenance.

(d) Each reservoir, standpipe, or elevated tank shall be equipped with a watertight roof or cover and an overflow.

(e) Each hydropneumatic tank shall be equipped with a pressure relief valve which shall have a rated working pressure in excess of the maximum system pressure.

(f) Each vent shall be equipped with a downfacing elbow or mushroom-type cap and be fitted with an insect screen.

(g) Any protective coating in contact with water shall comply with ANSI/NSF Standard 61, as amended and supplemented, incorporated herein by reference, and shall be inert and non-toxic and shall not impart any taste, odor or color to the water.

(h) All finished water storage reservoirs, tanks and appurtenances shall be disinfected in accordance with N.J.A.C. 7:10-12.11.

7:10-12.35 Required storage capacity

(a) Each single dwelling nonpublic water system shall be equipped with water storage capacity in accordance with a storage tank manufacturer's recommendations reflecting well yield, well pump capacity, and size of dwelling to be served.

(b) Each public noncommunity and nonpublic water system serving a nonresidential unit and/or multiple residential or nonresidential realty improvements equipped with hydropneumatic water storage facilities shall comply with the following requirements:

1. The capacity of the pumping equipment in a hydropneumatic storage system shall be at least 10 times the average daily water demand determined using Table 1 at N.J.A.C. 7:10-12.6.

2. The gross volume of the hydropneumatic tank, in gallons, shall be either at least ten times the capacity of the largest pump, rated in gallons per minute, or the gross volume recommended by the equipment manufacturer.

EXAMPLE: Assume a proposed water system has an average daily water demand, as determined using Table 1 at N.J.A.C. 7:10-12.6, of 10,000 gallon per day (gpd) or seven gallons per minute (gpm). The total capacity of the well and/or booster station pump(s) must be 70 gpm (10 times seven gpm) and the system must have a hydropneumatic tank capacity of 700 gallons (10 times 70 gpm).

(c) The administrative authority shall determine the minimum water storage capacity for nonpublic nonresidential water systems using gravity storage facilities.

7:10-12.36 General requirements for distribution systems

(a) All service lines and distribution mains intended for year-round water service shall be covered with sufficient earth to prevent freezing, with the minimum depth of cover being three feet.

(b) All newly constructed service lines and distribution mains shall be disinfected before being placed in service in accordance with N.J.A.C. 7:10-12.12.

(c) So far as is practicable, distribution mains shall be laid in a loop system to eliminate deadends. The distribution system shall be equipped with hydrants or other flushing devices to permit water main flushing. Each deadend, if unavoidable, shall be provided with a flushing device or a valved outlet to which a temporary pipe may be affixed to discharge flushed water above ground.

(d) Every water service line shall be separated with undisturbed or compacted earth to a horizontal distance of at least five feet from any sanitary sewer, at least 10 feet from any septic tank, distribution box, disposal field or seepage pit, and at least 25 feet from any cesspool.

(e) All water mains and sanitary or industrial sewer lines shall be separated by a horizontal distance of at least 10 feet. If such lateral separation is not possible, the water and sewer lines shall be in separate trenches (step trenches are prohibited) with the top of the sewer line at least 18 inches below the bottom of the water main. At sewer line and water main crossings, the top of the sewer line shall be at least 18 inches below the bottom of the water main. If such vertical separation is not possible, then the water line shall be sleeved a distance of five feet to both sides of the crossing. Sewer service laterals are not subject to this requirement.

7:10-12.37 Capacity and size of service lines

(a) The minimum inside diameter of any service line shall be three-quarter inches.

(b) The design capacity of every distribution main and every service line shall be such as to provide a minimum pressure of 20 psi at ground level under all flow conditions.

(c) A distribution main which serves a fire hydrant shall have a minimum inside diameter of six inches.

7:10-12.38 Water crossings

(a) Each distribution main which spans a stream or water course or which is fastened to a bridge shall be of cast iron, ductile iron or steel, and shall be properly supported to maintain stability.

(b) Each distribution main which crosses under a stream or water course shall be at least three feet below the bed of the stream or water course, and shall be constructed of cast iron, ductile iron or steel or other suitable material.

7:10-12.39 General requirements for the certification of new, altered or replacement nonpublic or public noncommunity water systems

(a) An application for certification of a new nonpublic water system or public noncommunity water system, alteration thereto, or replacement thereof, which includes a new or altered water source, a new or altered water treatment method, or a significant distribution system expansion, shall be submitted by the owner of the water system in writing to the administrative authority on the application form, if any, provided by the administrative authority.

1. The application form for certification shall, at a minimum, contain the following information:

i. The name of water system owner;

ii. The address of water system owner;

iii. The location of water system;

iv. A description of the work to be performed; and

v. Relevant specifications and diagrams for the work performed, sufficient to enable the administrative authority to determine conformance with the requirements of this subchapter.

(b) In the case of a water system using wells as a water source, the application shall include a copy or copies of the well drilling permit or permits obtained from the Bureau of Water Allocation in the Department.

(c) In the case of a water system for which water in excess of 100,000 gallons per day is to be diverted the application shall also include a copy of the water supply allocation permit issued by the Bureau of Water Allocation in the Department.

(d) In the case of a water system that will serve 50 or more realty improvements, prior to any final major subdivision plot approval and in addition to the application for certification to the administrative authority, an application for certification shall be submitted to the Department in accordance with N.J.A.C. 7:10-12.42.

(e) The administrative authority shall review the information contained in the application for certification and shall determine whether the proposed water system is in compliance with requirements of this subchapter.

(f) The administrative authority shall notify the applicant in writing of its approval or denial of the application.

(g) Any certification issued by an administrative authority shall be conditioned on the following:

1. Submission and approval of copies of reports and/or certification from the well driller and/or verification by inspection during installation that all well(s) are constructed in accordance with the requirements of this subchapter and any special conditions of the well permit approvals from the Department.

2. Submission and approval of the results of water quality analyses conducted pursuant to N.J.A.C. 7:10-12.30.

7:10-12.40 Additional requirements for the certification of single dwelling nonpublic water systems and other nonpublic water systems

(a) In addition to the requirements of 7:10-12.39, the application for certification of a single dwelling nonpublic or other nonpublic water system shall include the following:

1. An explanation of the need and justification for construction of a single dwelling nonpublic water system or a nonpublic water system in lieu of connection to a public community water system;

2. In the case of a single dwelling realty improvement or any new or altered water source, a surveyor's plot plan or a sketch of the property;

3. In the case of a subdivision containing multiple realty improvements, a plot plan which contains sufficient detail to permit examination and comprehension of the proposed water system; and

4. The plot plan or sketch pursuant to (a)2 and 3 above shall show the locations of all wells and service lines, and sewage disposal systems and other potential sources of contamination within 150 feet of each proposed well. Plot plans shall show the locations of municipal boundaries, roads, streams, sanitary sewers, storm water sewers and drainage channels, test wells, well fields, all existing and proposed water supply and sewage disposal facilities, and service lines and potential sources of contamination within 150 feet of each proposed well. The topography of the property shall be shown by elevations, contours or other suitable method.

(b) The certification issued by the administrative authority for a single dwelling nonpublic or other nonpublic water system shall be conditioned on the submission and approval of a description of the as-built water system that includes the following:

1. If the water source is other than a well, the dependable yield, quality of the water in relation to its treatability, and the methods of construction employed to ensure adequate protection;

2. If the water source is a well or wells, data on the geological strata penetrated during construction, construction features of the well or wells, yield, and water quality;

3. Pumping equipment, including location, type, capacity and method of operational control;

4. Water storage facilities, including location, type, capacity, and operational pressure range;

5. Analytical results regarding the microbiological, physical and chemical quality of the water in accordance with N.J.A.C. 7:10-12.30;

6. Water treatment processes, if any, together with the type and application rate of chemicals to be applied;

7. Treatment and disposal of sludge and filter backwash, if applicable; and

8. Method for the disinfection of all surfaces, prior to the system being placed into operation, with which adequately protected water may come into contact.

7:10-12.41 Additional requirements for the certification of public noncommunity water systems

(a) In addition to the requirements of N.J.A.C. 7:10-12.39, the application for certification of a public noncommunity water system shall include the following:

1. An explanation of the need and justification for construction of a public noncommunity water system in lieu of connection to a public community water system;

2. Plans and specifications of the proposed water system prepared by a New Jersey-licensed professional engineer and bearing such engineer's seal and signature. Such plans shall be drawn to a suitable scale to facilitate photo-reduction and with sufficient detail to permit examination and comprehension of the proposed water system. The plans shall show the locations of municipal boundaries, roads, streams, sanitary sewers, storm water sewers and drainage channels, test wells, well fields, all existing and proposed water supply and sewage disposal facilities, all distribution mains, service lines, and potential sources of contamination within 200 feet of each proposed well. The topography of the property shall be shown by elevations, contours, or other suitable methods;

3. Information on the number and types of realty improvements to be served, including number of persons expected to use the water, and anticipated water demand; and

4. Information on the size, type of pipe, location, depth and sanitary protection of the distribution mains, and whether such mains are to be used for fire service.

(b) The certification issued by the administrative authority for a public noncommunity water system shall be conditioned on the submission and approval of a description of the as-built water system that includes the information specified at N.J.A.C. 7:10-12.40 (b) 1 through 8.

(c) All applications for certification to construct or operate a new public nontransient noncommunity water system shall comply with the requirements set forth at N.J.A.C. 7:10-13.5 and 13.6.

7:10-12.42 Requirements for certification by the Department of water supply systems for 50 or more realty improvements

(a) Before any final major subdivision plot approval may be granted by any municipal planning board for 50 or more realty improvements, an application for certification of the water system shall be submitted to the Department. Such application shall be submitted in accordance with this section and shall include plans, specifications and an engineer's report, prepared pursuant to (c) through (e) below by a qualified New Jersey licensed professional engineer. The plans shall bear the engineer's seal as required by N.J.S.A. 45:8-45.

(b) A complete application for certification shall include all of the following:

1. A completed original Standard Application Form obtained from the Department;

i. The application form must be signed by the owner, or the proper official (with title), as specified on the application form, of the company or corporation constructing the realty improvements. If the application is signed by an authorized agent, a certified copy of the authorization shall be attached.

ii. A copy of the resolution of preliminary subdivision approval from the municipal planning board and specific endorsement(s) of the type of water system(s) (individual wells or public community water system) being proposed.

2. The plans, specifications and engineer's report specified at (a) above;

3. A copy of Pinelands Certificate of Filing, Notice of Filing, Certificate of Completeness, Preliminary Zoning Permit, resolution of the Pinelands Commission approving the project or a letter from the Pinelands Commission indicating that the project is exempt from the Pinelands Commission review; and

4. The applicable fee pursuant to N.J.A.C. 7:10-15.

(c) The engineer's report shall describe in concept the water system(s) for the proposed realty improvements and shall identify the eventual owner and operator of the water system. The report shall include a detailed evaluation of alternative water systems specifically addressing municipal planning board recommendations, costs, and water quality.

(d) The specifications shall describe the general construction, materials, and equipment to be used for the water system.

(e) If the proposed water system consists of individual wells, the engineering plans shall also include the following:

1. A plan of the proposed subdivision showing lots with their dimensions, contours or original grades, proposed elevation of the final grading shown at corner lots or any contemplated change of slope, drainage right of way and any contemplated diversion thereof affecting the proposed realty improvements, storm sewers, location and depth of all wells and existing water supplies within 500 feet of any realty improvement, and location and depth of proposed wells for the water system;

2. A description of the proposed water system including location of all test wells drilled to investigate water supply potential, location of all natural streams and storm water drainage channels on or abutting the subdivision and of any contemplated relocation of same, location of coastal waters when less than one-half mile from the mean high water line and all salt water estuaries and elevation of maximum high water when available, type of well or source of water, estimated depth of wells, and pumping equipment, storage facilities, and purification facilities;

3. An inventory of potential major and minor pollutant sources within the subdivision and of major pollutant sources within 500 feet of the property line of the subdivision and 2,500 feet upgradient of ground water flow; and

4. Tentative schedule for construction of the realty improvements and estimated date of availability of and connection to a public community water system if expected.

(f) Such additional information as the Department may request in order to fulfill the requirements of this section.

(g) Depending on the type of proposed water system, the Department will review the application for certification in accordance with the standards for construction set forth at:

1. For public community water systems, N.J.A.C. 7:10-11.
2. For individual wells, N.J.A.C. 7:10-12.

7:10-12.43 Requests for adjudicatory hearings

(a) An applicant for a certification or any person, subject to the limitation on third party appeal rights set forth in P.L. 1993, c. 359 (N.J.S.A. 52:4B-3.1 through 3.3), who believes himself or herself to be aggrieved with respect to decisions made by the Department pursuant to this subchapter may contest the decision and request an adjudicatory hearing pursuant to the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. and the New Jersey Uniform Administrative Procedure Rules, N.J.A.C. 1:1, in accordance with the appeal procedures set forth at N.J.A.C. 7:10-11.17.

(b) Any person who believes himself or herself to be aggrieved with respect to decisions made by the administrative authority may appeal pursuant to the local administrative authority appeal procedure as appropriate.

SUBCHAPTER 13 STANDARDS FOR TECHNICAL, MANAGERIAL, AND FINANCIAL CAPACITY OF PUBLIC COMMUNITY AND NONCOMMUNITY WATER SYSTEMS

7:10-13.1 Purpose and scope

This subchapter establishes minimum technical, managerial, and financial capacity requirements for new public community and nontransient noncommunity water systems. These requirements are necessary to prevent approval for operation of a water system which the Department has determined to be non-viable. A non-viable water system is prone to failure or otherwise unable to comply with all maximum contaminant level, treatment technique, and monitoring and reporting requirements established in the federal and State primary and secondary drinking water regulations.

7:10-13.2 Additional definitions

In addition to the words and terms defined at N.J.A.C. 7:10-1.3, the following terms are defined for the purposes of this subchapter:

“Capacity” means the overall capability of a water system to reliably produce and deliver water meeting all national primary drinking water regulations and applicable state regulations. Capacity encompasses the technical, managerial, and financial (TMF) capabilities that enable the water system to plan for, achieve, and maintain compliance with applicable drinking water standards.

7:10-13.3 Demonstration of technical capacity for community water systems

(a) An applicant for a permit to construct and operate a new public community water system pursuant to N.J.A.C. 7:10-11.5(a) shall, in addition to requirements stipulated in N.J.A.C. 7:10-11.5(d), provide a detailed description of source of supply,

treatment, storage, and distribution of the new water system's infrastructure, which shall include the following:

1. Identification and evaluation of all critical facilities and equipment whose failure would result in a water outage or water quality failure;

2. Evidence, including a description, of any deeds, leases or easements for land, water supply sources, or physical facilities used in the operation of the system; and

3. Evaluation of the feasibility of connecting to any adjacent water systems and justification why these connections should not be required.

(b) An applicant for a permit to construct and operate a new public community water system pursuant to N.J.A.C. 7:10-11.5(a) shall submit an Infrastructure Replacement Plan that includes:

1. A description of and estimate of life expectancy of all sources of water supply, treatment, and transmission/distribution facilities including pipes, pumping stations, storage facilities, and meters; and

2. An equipment replacement plan including expected replacement date, costs, and sources of funding.

(c) An applicant for a permit to construct and operate a new public community water system pursuant to N.J.A.C. 7:10-11.5(a) shall submit proof of compliance with State operator certification regulations, N.J.A.C. 7:10A.

7:10-13.4 Demonstration of managerial and financial capacity for community water systems

(a) No person shall commence operation of a new public community water system prior to obtaining a permit to operate issued by the Department pursuant to N.J.A.C. 7:10-11.5(j).

(b) A written application for a permit to operate shall be submitted in accordance with this section and shall include a description of the as-built water system, and financial and managerial plans pursuant to (c) and (d) below.

(c) The managerial plan shall contain the following:

1. Information concerning the organizational structure of the system including:

i. A description of the organizational structure with a chart showing all aspects of water system management and operation;

ii. A description of the primary responsibilities and identification of all key personnel, including board of directors or councils, involved in the management or operation of the system or personnel;

iii. Identification, including the names and phone numbers, of those responsible for policy decisions ensuring compliance with State regulatory requirements, and the day-to-day operation of the system;

iv. If the person in charge of operation has other responsibilities unrelated to the water system, explain how the operator will reliably execute execute his or her responsibilities;

v. Copies of any contracts for management or operation of the water system by persons or agencies other than the system owner; and

vi. Description of how legal, engineering, and other professional services are provided.

2. A description of the qualifications of the owners and managers of the water system, including any training and experience relating to owning or managing a water system. Also, system owners shall include a list of public water systems previously or currently owned as well as any systems previously or currently operated under contract for another owner;

3. A description of a procedure for keeping management personnel informed concerning regulatory requirements for managing and operating a public water system;

4. An emergency management plan that includes:

i. Identification of known and potential natural and human-caused risks to the water system;

ii. Identification of personnel responsible for emergency management;

iii. A description of the notification procedures and means for implementation; and

iv. A description of the emergency response plan for each identified risk.

5. A description of system policies that define the conditions under which water service is provided. The system policies shall include a description of:

i. Water system responsibilities;

ii. Customer responsibilities;

iii. Design and construction standards for system modifications and additions;

iv. Cross-connection control;

v. Developer agreement and “late-comer”(future developers) policies;

vi. Customer information or public education;

vii. The process of investigating and responding to customer complaints;

viii. Budget development and rate structure that includes meter reading and billing schedule; and

ix. Response and notification if water quality violations occur.

(d) A financial plan shall include the following:

1. A 5-year budget that includes revenues, operating expenses, reserves, and capital improvements including:

i. A revenue/expenditure analysis that compares all anticipated water system revenues with planned expenditures for the next five years;

ii. Identification of reserve accounts for emergency funding and equipment replacement;

iii. A capital improvement plan for the next 5 years including identification of the project, estimated costs, and amount allocated for repayment of debt financing to meet new drinking water standards and accommodate growth.

2. A description of the budget and expenditure control procedures and reports that assure adequate budget control including:

i. Quarterly reports comparing actual expenditures to budgeted expenses; and

ii. Purchasing procedures or policy to prevent misuse of funds.

3. For new community water systems built in phases a statement of credit worthiness shall include the following:

i. Certification that the system is not in arrears on existing debt; and

ii. A current credit report.

7:10-13.5 Demonstration of technical capacity for public nontransient noncommunity water systems

(a) An applicant for a certification to construct and operate a new public nontransient noncommunity water system pursuant to N.J.A.C. 7:10-12.4(a) of this chapter shall in addition to requirements set forth at N.J.A.C. 7:10-12.39 and 12.41, submit to the administrative authority an engineer's report prepared by a New Jersey licensed professional engineer that contains:

1. A system description that includes:

i. An identification of the municipality, area, or facility to be served by the proposed system;

ii. A description of the nature of the establishments and of the area to be served by the proposed system;

iii. Provisions for future extension of the water system;

iv. Identification of all interconnections with other systems;

v. A description of the design basis, including average, daily, annual, maximum daily, peak hour demands, and useful life of all sources, treatment, and transmission facilities including pipes, pumping stations, and storage facilities;

vi. A description of proposed treatment processes including criteria and basis of design of units, methods or procedures used in arriving at recommendations and reasons or justifications for any deviations from conventional or indicated process or method;

vii. Identification of all backflow prevention devices;

viii. Description of source meters;

ix. Population projections and trends for 25 years into the future.

2 A description of the source adequacy including:

i. An analysis of the ability of the proposed and existing sources to reliably meet design demands, and a comparison of the available water with average and maximum daily demands, considering existing and future (25 years) conditions;

ii. A determination of the safe yield of the sources of supply.

(A) For ground water sources, the maximum potential yield for each well must be reported along with the following:

(1) An identification of the aquifer in which the wells are located;

(2) Well efficiency information, including ratio of most recent specific capacity to maximum specific capacity;

(3) Planned pumping rates of the wells, including the

maximum well capacity of each well based on limitations such as the relationship to other wells, interference from other wells, contamination, and excessive drawdown; and

(4) Operational considerations that may limit the pumping rate.

iii. A characterization of the sources of supply including appropriate hydrological data to demonstrate reliability and water quality with a comparison to established or proposed drinking water standards;

iv. Source water delineation and assessment in compliance with New Jersey source water protection requirements, if applicable.

3 Evidence of compliance with the State operator certification regulations, at N.J.A.C. 7:10A as applicable, including the name of the operator(s) and licenses held; and

4 Description of compliance with the State cross-connection control program (at N.J.A.C. 7:10-10.9), as applicable.

5 An operations plan that includes the following:

i. The name of, and license possessed by, the system operator(s);

ii. Responsibilities, qualifications and training of operating personnel;

iii. A description of the routine operation/maintenance procedures.

iv. Water quality violation response procedures;

v. Water quality monitoring plan to comply with regulatory requirements for supply;

vi. Sources, treatment and distribution system;

vii. Maintenance and testing of backflow prevention devices;

viii. Source meter maintenance;

ix. Operation of treatment works and pumping plants; and

x. Storage tank inspection and cleaning.

7:10-13.6 Demonstration of managerial and financial capacity for nontransient noncommunity water systems

(a) No person shall commence operation of a new public nontransient noncommunity water system prior to obtaining certification from the administrative authority pursuant to this section.

(b) The supplier of water shall submit to the administrative authority the following information prior to the certification and approval of the water system for operation:

1. A description of the as-built water system that includes the information required under N.J.A.C. 7:10-12.40(b)1 through 8;

2. A managerial plan containing the following:

i. A description of the organizational structure with a chart showing all aspects of water system management and operation;

ii. A description of the primary responsibilities and identification of all key personnel, including board of directors or councils, involved in the management or operation of the system or personnel;

iii. Identification, including the names and phone numbers, of those responsible for policy decisions ensuring compliance with State regulatory requirements, and the day-to-day operation of the system;

iv. If the person in charge of operation has other responsibilities unrelated to the water system, explain how the operator will reliably execute his or her managerial responsibilities;

v. Copies of any contracts for management or operation of the water system by persons or agencies other than the system owner; and

vi. Description of how legal, engineering, and other professional services are provided.

vii. The identity of the system's legal owner name and address.

viii. Copies of all documents which form the legal basis of the system and prescribe the conditions under which the system may operate.

ix. Copies of any deeds, leases or easements for land, water supply sources, or physical facilities used in the operation of the system.

x. A description of the qualifications of the owners and managers of the water system, including any training and experience in owning or managing a water system. Also, system owners shall include a list of public water systems previously or currently owned as well as any systems previously or currently operated under contract for another owner;

xi. A description of a plan for keeping management personnel informed concerning regulatory requirements for managing and operating a public water system; and

xii. The names and telephone numbers of responsible persons to contact in the event of an emergency.

3. A financial plan including the following:

i. A 5-year budget that includes revenues, operating expenses, reserves, and capital improvements including:

(1) A revenue/expenditure analysis that compares all anticipated water system revenues with planned expenditures for a 5 year period.

(2) Identification of reserve accounts for emergency funding and equipment replacement.

(3) A capital improvement plan for the next 5 years including identification of the project, estimated costs, and amount allocated for repayment of debt financing to meet new drinking water standards and accommodate growth.

7:10-13.7 Public water systems under the jurisdiction of the the Department of Community Affairs or under the jurisdiction of the Board of Public Utilities

(a) Determinations of technical, managerial, and financial capacity with respect to a water system subject to the jurisdiction of the Division of Local Government Services, within the Department of Community Affairs shall be made in consultation with the Director of that Division. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Division of Local Government Services under N.J.S.A. 40A:1-1 et seq.

(b) Determinations of technical, managerial, and financial capacity with respect to a water system, which is a public utility subject to the jurisdiction of the Board of Public Utilities pursuant to N.J.S.A. 48:1-1 et seq., shall be made in consultation with the Board of Public Utilities. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Board of Public Utilities under N.J.S.A. 48:1-1 et seq.

SUBCHAPTER 15. FEES

7:10-15.1 Purpose and Scope

This subchapter establishes the fees for the Safe Drinking Water Program as authorized by the State Act and based upon the estimated costs of conducting, monitoring, administering and enforcing the Safe Drinking Water Program. The Department will periodically review the fee schedule and, after consideration of other funding sources, propose and adopt adjusted fees as necessary to reflect changes in the costs of conducting, monitoring, administering and enforcing the Safe Drinking Water Program.

7:10-15.2 Payment Of Fees

(a) Each supplier of water and each owner or operator of a bulk distribution system shall pay the applicable annual operation fee, in accordance with N.J.A.C. 7:10-15.4, on or before July 1 of each year.

(b) Each supplier of water and each owner or operator of a bulk distribution system shall pay the applicable permit application review fee in accordance with N.J.A.C. 7:10-15.3.

(c) Each applicant for a physical connection permit shall pay the initial physical connection permit fee in accordance with N.J.A.C. 7:10 - 15.5.

(d) Each applicant for a physical connection permit renewal shall pay the physical connection permit renewal fee in accordance with N.J.A.C. 7:10 - 15.5.

(e) Payment of fees shall be by check or money order made payable to "Treasurer, State of New Jersey" and submitted to the Department as follows:

1. Permit application review fees and initial physical connection permit fees shall be submitted at the time of application.
2. Annual operation fees and annual physical connection permit renewal fees shall be submitted to the Department within 30 calendar days of the invoice date in accordance with the instructions specified in the invoice.

(f) Each check or money order shall identify the fee being paid and the applicable public water system or physical connection permit identification number.

(g) Any fee under this subchapter that is subject to N.J.A.C. 7:1L shall be payable in installments in accordance with N.J.A.C. 7:1L.

7:10-15.3 Calculation of Permit Application Review Fees

(a) Except as provided at (d) and (e) below, the permit application review fee for the construction and/or modification of a public water system and/or bulk distribution system shall be determined as follows:

1. Step One: Multiply that part of the project construction cost that is:
   i. Less than or equal to $250,000 by 0.9 percent;
   ii. Between $250,001 and $1,000,000 by 0.6 percent; and
   iii. More than $1,000,000 by 0.3 percent.

2. Step Two: Sum the figures calculated under (a)1 above to obtain the fee due. For example, if the project cost is $1,100,000, the fee is calculated as the sum of 0.9 percent of the first $250,000 (0.009 X $250,000 = $2,250) plus 0.6 percent of the next $750,000 (0.006 X $750,000 = $4,500) plus 0.3 percent of the amount greater than $1,000,000 (0.003 X $100,000 = $300) equals $7,050.

(b) The maximum and minimum permit application review fees which the Department will assess are $12,000.00 and $100.00, respectively.

(c) For an application for a permit that includes a new source of water supply (excluding interconnection or bulk purchase sources), a permit application review fee of $1,000 for each such new source shall be submitted in addition to the fee calculated pursuant to (a) above.

(d) For an application for a permit to construct a distribution system pursuant to N.J.A.C. 7:10-11.10, the permit application review fee shall be determined in accordance with the following schedule, irrespective of the project construction cost:

1. For each master permit and master permit renewal, the permit application review fee shall be as follows, where Class 1 through 4 are as defined at N.J.A.C. 7:10-15.4(a):

Class 1	$ 500
Class 2	$1,000
Class 3	$2,500
Class 4	$5,000

2. ii. For each permit to construct a water main pursuant to N.J.A.C. 7:10-11.10(b)1, the permit application review fee shall be $250.

3. For each permit to construct a water main pursuant to N.J.A.C. 7:10-11.10(b)2, the permit application review fee shall be the greater of the amounts calculated based on the number of proposed service connections or the water main length in accordance with the following table:

Service Connections	Water Main Length (ft)	Fee Required
50 to 100	1,500 to 3,000	$1,000
101 to 250	3,001 to 7,500	$2,500
251 to 500	7,501 to 15,000	$4,000
more than 500	more than 15,000	$5,000

4. For each permit to construct an interconnection with another public community water system pursuant to N.J.A.C. 7:10-11.10(b)2, the permit application review fee shall be $250 or, if the interconnecting water main length is 1,500 feet or

more, the amount calculated based on the interconnecting water main length in accordance with the table at 3 above.

(e) For each application submitted pursuant to N.J.A.C. 7:10-12.42, the fee shall be $1,000.

7:10-15.4 Calculation of Annual Operation Fees

(a) For the purpose of determining the annual operation fee, each public community water system and bulk distribution system shall be classified on the basis of population served as of July 1 of each year, as follows:

1. Class 1: 25 to 999 people;
2. Class 2: 1,000 to 9,999 people;
3. Class 3: 10,000 to 49,999 people; and
4. Class 4: 50,000 or more people.

(b) During the initial year of operation, the annual operation fee as calculated pursuant to (c) below for a new public water system or a new bulk distribution system shall be paid on or before the first day of operation and shall be prorated as follows:

1. For a system which begins operation on or after July 1 up to and including September 30, the full annual operation fee;
2. For a system which begins operation on or after October 1 up to and including December 31, three-quarters of the annual operation fee;
3. For a system which begins operation on or after January 1 up to and including March 31, one-half of the annual operation fee; and
4. For a system which begins operation on or after April 1 up to and including June 30, one-quarter of the annual operation fee.

(c) The annual operation fee for a public water system or bulk distribution system shall be determined in accordance with the following table:

Class	Fee for System without Water Treatment	Fee for System with Water Treatment
Class 1	$ 60.00	$ 120.00
Class 2	$ 360.00	$ 720.00
Class 3	$ 790.00	$1,580.00
Class 4	$1,640.00	$3,280.00

7:10-15.5 Fees For Physical Connection Permits

(a) The initial physical connection permit review fee shall be $150.00.

(b) The physical connection permit renewal fee shall be $200.